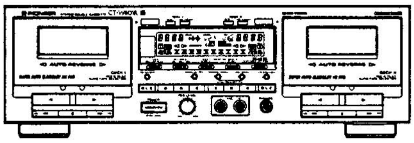
PIONEER®
The Art of Entertainment

Service Manual



ORDER NO.
ARP2547

STEREO DOUBLE CASSETTE DECK

CT-W801R
CT-W851R
CT-W701R

CT-W801R, CT-W851R AND CT-W701R HAVE THE FOLLOWING:

Type	Model			Power Requirement	Remarks
	CT-W801R	CT-W851R	CT-W701R		
KUC	○	–	○	AC120V only	
KUC/CA	○	–	○	AC120V only	
HEM	–	○	○	AC220 – 230V, 230 – 240V (Switchable) *	
HB	–	○	○	AC220 – 230V, 230 – 240V (Switchable) *	
SD	○	–	–	AC110V, 120 – 127V, 220V, 240V (Switchable)	

* Change the connection of the power transformer's primary wiring.

- **This manual is applicable to the following: CT-W801R/KUC, KUC/CA, and SD; CT-W851R/HEM and HB; CT-W701R/KUC, KUC/CA, HEM and HB.**
- **For the following: CT-W801R/SD; CT-W851R/HEM and HB, refer to page 63.**
  For the following: CT-W701R/HEM and HB, refer to page 65.
- **Ce manuel pour le service comprend les explications de réglage en français.**
- **Este manual de servicio trata del método ajuste escrito en español.**
- **KUC/CA type is identical to KUC type with French instruction manual.**
  For all information except for the instruction, refer to KUC type.

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This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY INFORMATION

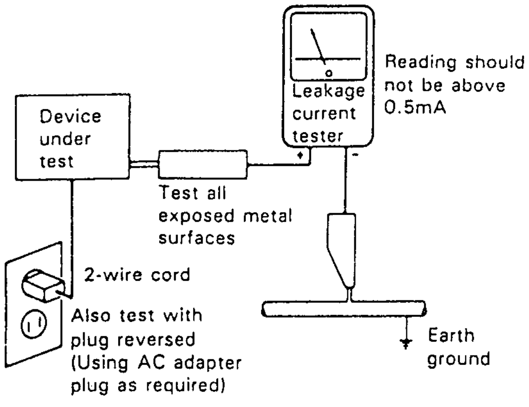
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.


Reading should not be above 0.5mA
Leakage current tester
+
-
Device under test
Test all exposed metal surfaces
2-wire cord
Also test with plug reversed (Using AC adapter plug as required)
Earth ground

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

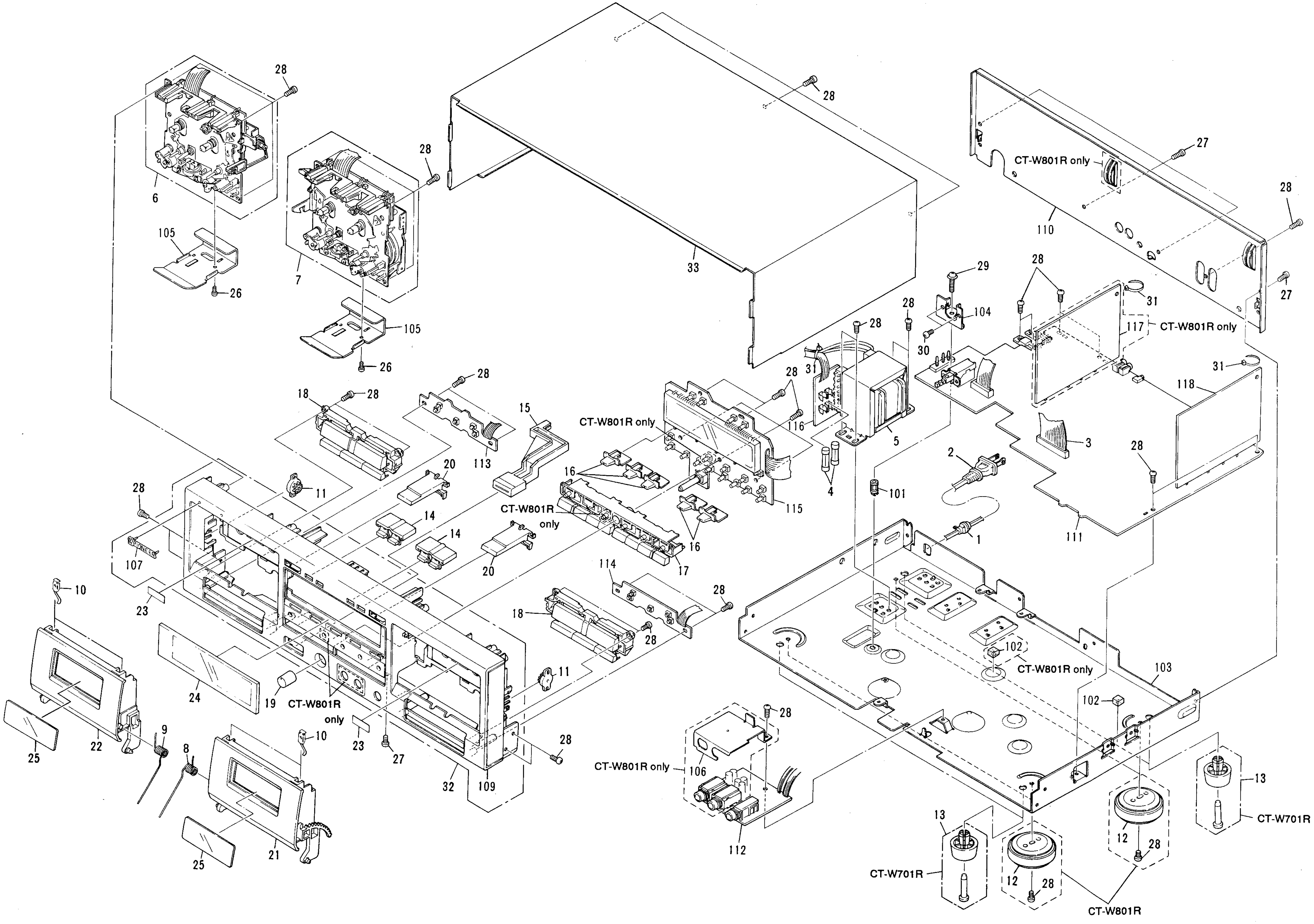
Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.
The use of a substitute replacement component which dose not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEWS AND PARTS LIST

2.1 EXTERIOR (CT-W801R/KUC, KUC/CA AND CT-W701R/KUC, KUC/CA TYPES)



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CT-W801R only
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CT-W801R only
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109
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CT-W701R
CT-W801R

NOTES:

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- Parts m

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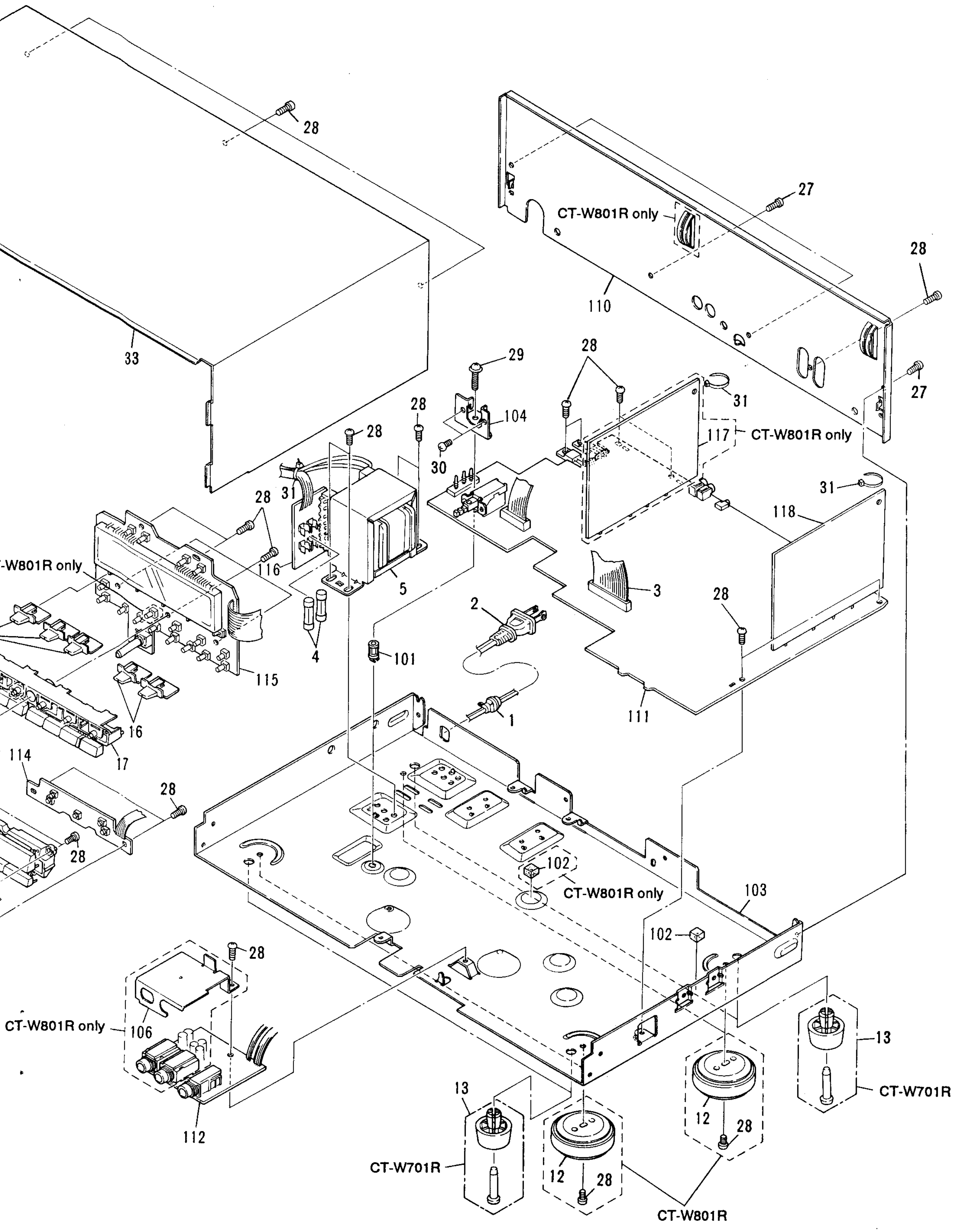


NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List

Mark	No.	Description	Part No.
⚠	1	Strain relief	CM – 22C
⚠	2	AC power cord	PDG1015
	3	Lead card 24P	RDD1265
⚠	4	FU1, FU2 Fuse (1.5A)	REK1001
⚠	5	Power transformer	RTT1165
⊙	6	Mechanism unit (Deck I)	RYM1169
⊙	7	Mechanism unit (Deck II)	RYM1170
	8	Door spring L	RBH1304
	9	Door spring R	RBH1305
	10	Half pressure spring	RBK1004
	11	Damper assembly	REC1005
	12	Insulator (CT-W801R)	PNW1912
	13	Foot assembly (CT-W701R)	PXA1201
	14	Counter knob	RAC1426
	15	Power knob	RAC1712
	16	Slide knob	RAC1713
	17	Function knob A (CT-W801R)	RAC1714
		Function knob A (CT-W701R)	RAC1716
	18	Function knob B	RAC1717
	19	VR knob	RAC1719
	20	Eject knob	RAC1722
	21	Door pocket R (CT-W801R)	RAH2073
		Door pocket R (CT-W701R)	RAH2074
	22	Door pocket L (CT-W801R)	RAH2076
		Door pocket L (CT-W701R)	RAH2077
	23	Remain display paper	REE – 113
	24	FL lens	RAH2079
	25	Door lens	RAH2086
	26	Screw	BBZ20P040FMC
	27	Screw	BBZ30P060FZK
	28	Screw	BBZ30P080FMC
	29	Screw	IBZ30P150FCU
	30	Screw	PMA30P060FMC
	31	Cord clamper	REC – 371
	32	Front panel assembly (CT-W801R)	RXX1518
		Front panel assembly (CT-W701R)	RXX1519
	33	Bonnet assembly	RXX1521

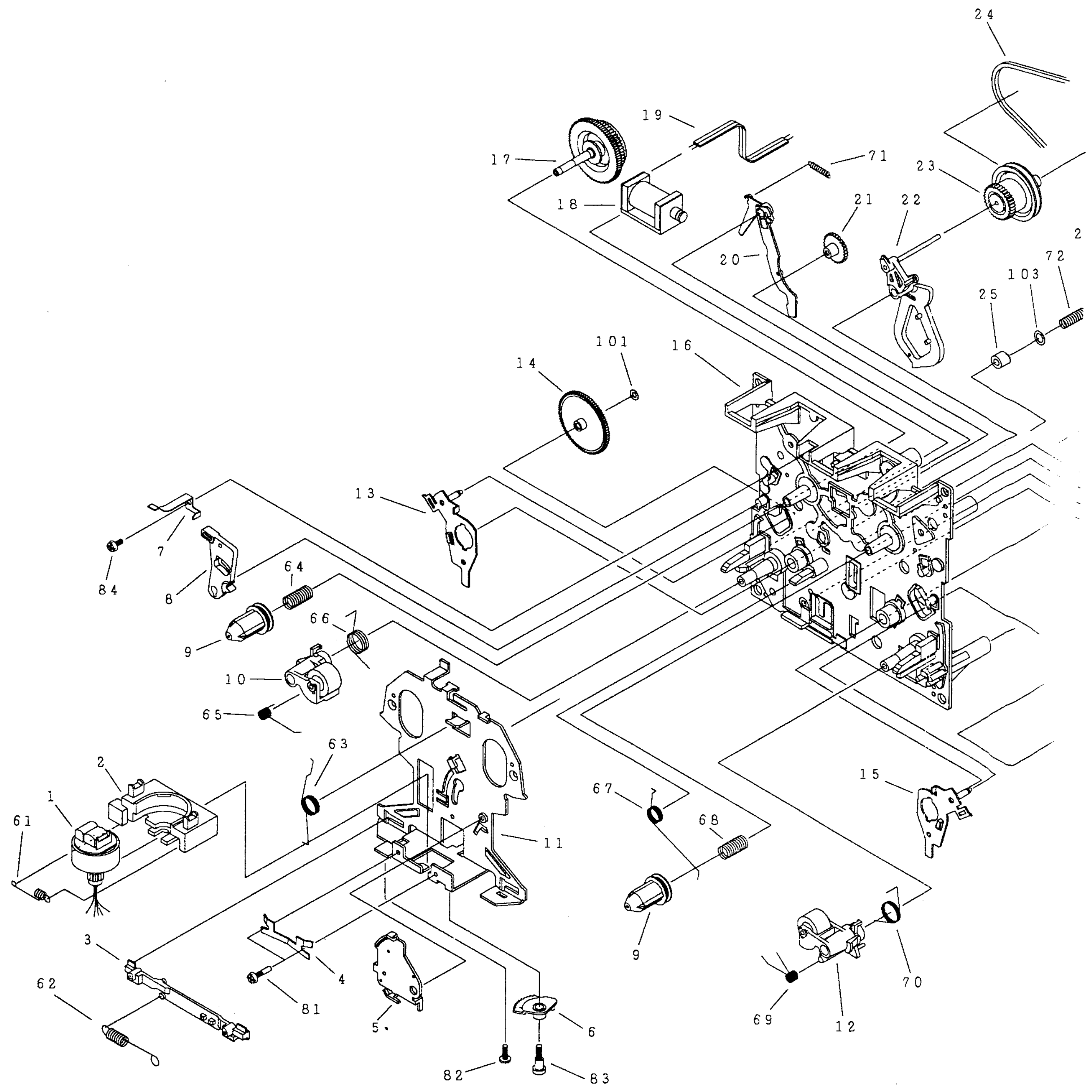
Mark	No.	Description	Part No.
NSP	101	PCB spacer	PNY – 404
NSP	102	PCB spacer (rubber)	REB1201
NSP	103	Main chassis	RNB1070
NSP	104	SW bracket	RNE1441
NSP	105	Mechanism shield plate	RNE1519
NSP	106	Shield case (CT-W801R only)	RNE1520
NSP	107	Name plate	PAM1407
	108	······	
NSP	109	Front panel (CT-W801R)	RAH2065
NSP		Front panel (CT-W701R)	RAH2067
NSP	110	Rear panel (CT-W801R)	RNA1569
NSP		Rear panel (CT-W701R)	RNA1573
NSP	111	MAIN unit (CT-W801R)	RWZ2486
NSP		MAIN unit (CT-W701R)	RWZ2511
NSP	112	HP, MIC unit (CT-W801R)	RWZ2487
NSP		HP unit (CT-W701R)	RWZ2512
NSP	113	OPERATE SW (1) unit (CT-W801R)	RWZ2488
NSP		OPERATE SW (1) unit (CT-W701R)	RWZ2513
NSP	114	OPERATE SW (2) unit (CT-W801R)	RWZ2489
NSP		OPERATE SW (2) unit (CT-W701R)	RWZ2514
NSP	115	DISPLAY unit (CT-W801R)	RWZ2490
NSP		DISPLAY unit (CT-W701R)	RWZ2515
NSP	116	TR SEC unit (CT-W801R)	RWZ2491
NSP		TR SEC unit (CT-W701R)	RWZ2516
NSP	117	REC (1) unit (CT-W801R only)	RWX1065
NSP	118	REC (2) unit (CT-W801R)	RWX1066
NSP		REC unit (CT-W701R)	RWX1057

2.2 MECHANISM UNIT (CT-W801R/KUC, KUC/CA, SD, CT-W701R/KUC AND KUC/CA TYPES)

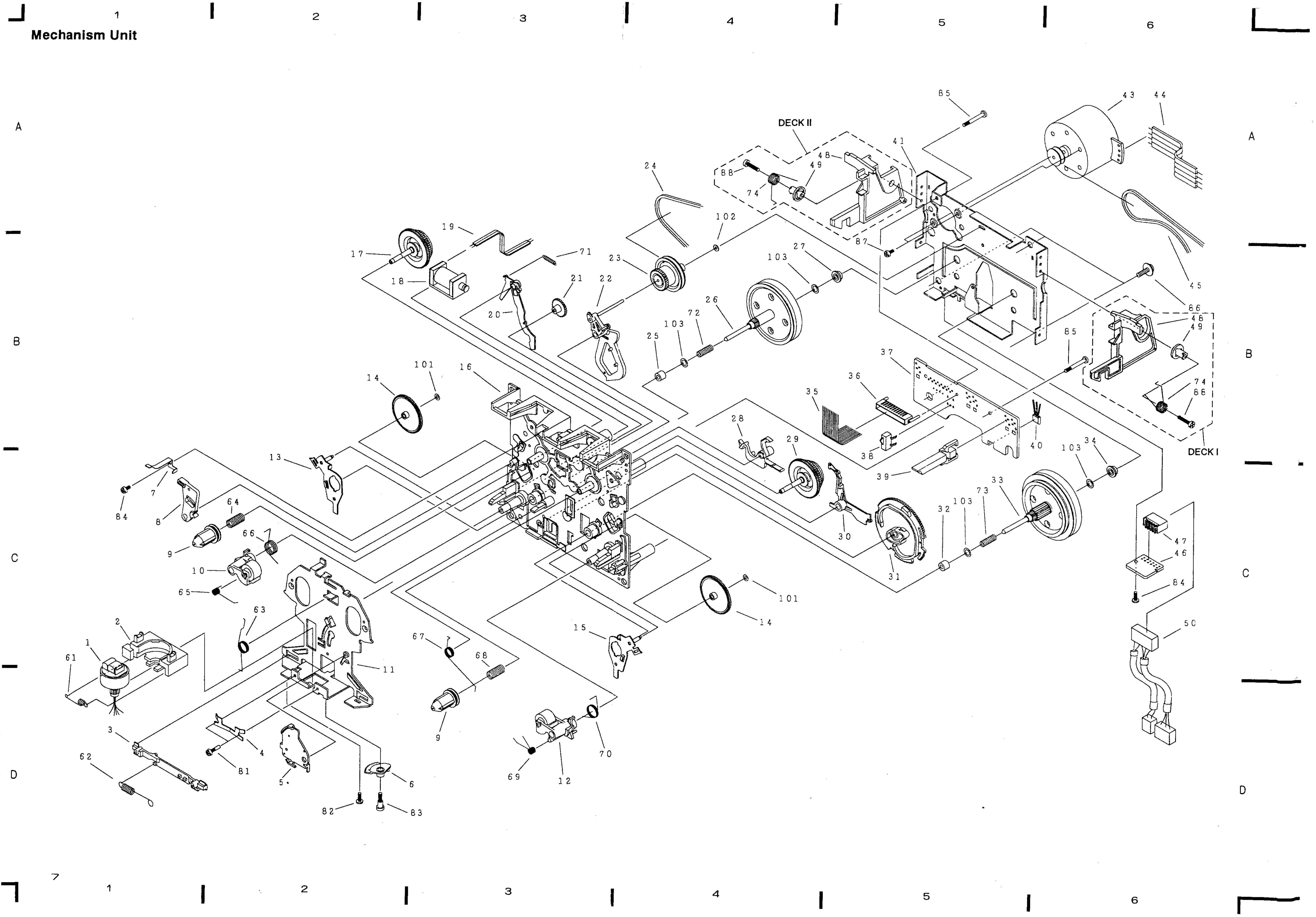
Parts List

Mark	No.	Description	Part No.
	1	ASS'Y HOLDER HEAD	RXA1477
	2	FLAME HEAD	RNK1715
	3	LEVER HEAD	RNK1716
	4	SPRING AZIMUTH	RBK1006
	5	ASS'Y ARM ASSIST	RXA1401
	6	GEAR ARM HEAD	RNK1717
	7	SPRING CASSETTE	RBK1039
	8	EJECT LOCK	RNK1718
	9	CAP REEL	RNK1719
	10	ASS'Y PINCH ARM L	RXA1403
	11	CHASSIS HEAD	RNE1437
	12	ASS'Y PINCH ARM R	RXA1404
	13	ASS'Y ARM PLAY L	RXA1405
	14	GEAR PLAY	RNK1720
	15	ASS'Y ARM PLAY R	RXA1406
	16	CHASSIS 0S	RXA1411
	17	ASS'Y SUB REEL L	RXA1407
⚠	18	SOLENOID	RXP1017
	19	WIRE	RDC1006
	20	ARM RVS	RNK1721
	21	GEAR FF	RNK1723
	22	ASS'Y ARM FR	RXA1412
	23	ASS'Y PULLEY FR	RXA1413
	24	BELT FR	REB1158
	25	METAL	RNG1048
	26	ASS'Y FLYWHEEL L	RXA1423
	27	METAL	RNG1005
	28	ARM BRAKE	RNK1724
	29	ASS'Y SUB REEL R	RXA1408
	30	ARM TRIGGER	RNK1722
	31	GEAR CAM	RNK1725
	32	METAL	RNG1049
	33	ASS'Y FLYWHEEL R	RXA1424
	34	METAL	RNG1004
	35	WIRE	RDD1257
NSP	36	HOLDER WIRE	RNK1683
	37	P.C. BOARD	RNP1347
	38	SWITCH MODE	RSN1020
	39	SWITCH (LEAF)	RSN1019
	40	HALL IC.	DN6851A
	41	BRACKET FW	RNE1438
	42	······	
	43	ASS'Y MOTOR	RXM1052
NSP	44	WIRE	RDD1012
	45	BELT MAIN	REB1159
	46	P.C. BOARD	RNP1348
	47	HOUSING	RKP1397
	48	EJECT LEVER R (DECK I)	RNK1703
		EJECT LEVER L (DECK II)	RNK1702
	49	COLLAR	RNK1704
	50	WIRE HEAD (DECK I)	RKP1505
		WIRE HEAD (DECK II)	RKP1399
	61	SPRING	RBH1282
	62	SPRING	RBH1283
	63	SPRING	RBH1284
	64	SPRING	RBH1286
	65	SPRING	RBH1288
	66	SPRING	RBH1290
	67	SPRING	RBH1285
	68	SPRING	RBH1287
	69	SPRING	RBH1289
	70	SPRING	RBH1291
	71	SPRING	RBH1292
	72	FWR SPRING	RBH1061
	73	FWF SPRING	RBH1325
	74	SPRING (DECK I)	RBH1293
		SPRING (DECK II)	RBH1294
	81	SCREW (AZIMUTH)	RBA1023
	82	SCREW	RBA1027
	83	SCREW	RBA1030
	84	SCREW	PCZ20P040FMC
	85	SCREW	RBA1093
	86	SCREW	RBA1094
	87	SCREW	RBA1086
	88	SCREW	RBA1095
	101	WASHER	RBF1044
	102	WASHER	RBF1046
	103	WASHER	WA26D047D013

Mechanism Unit



Mechanism Unit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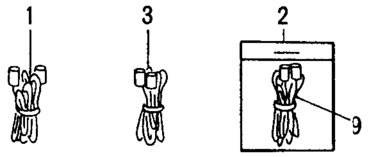
3. PACKING AND PARTS LIST

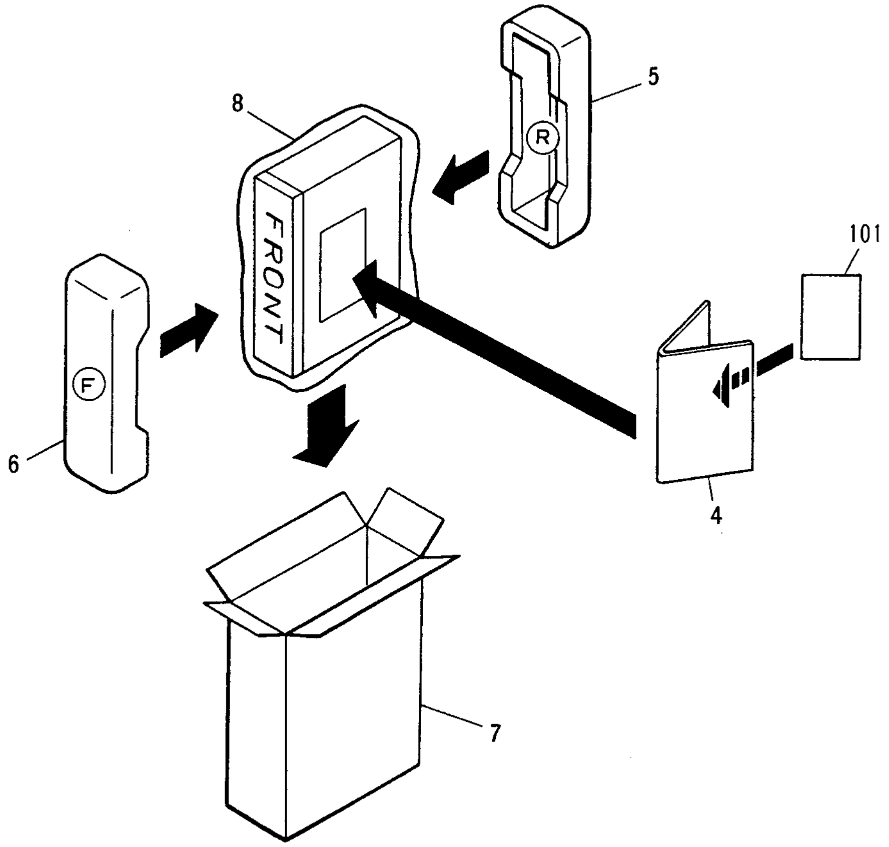
NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List (CT-W801R/KUC, KUC/CA and CT-W701R/KUC, KUC/CA types)

Mark	No.	Description	Part No.
	1	Connection cord (with mini plug)	PDE – 319
	2	Connection cord assembly	RDE1002
	3	Control cord	RDE1030
	4	Operating instructions (English : KUC)	RRB1120
		Operating instructions (English/French : KUC/CA)	RRE1064
	5	Pad (R)	RHA1045
	6	Pad (F)	RHA1088
	7	Packing case (CT-W801R)	RHG1368
		Packing case (CT-W701R)	RHG1371
	8	Sheet	RHX – 034
	9	Connection cord	RDE – 010
NSP	101	Warranty card	ARY1044





4. SCHEMATIC DIAGRAMS

1. RESISTORS :
   Indicated in Ω, 1/4W, 1/6W, 1/8W, ±5% tolerance unless otherwise noted k ; kΩ, M ; MΩ, (F) ; ±1%, (G) ; ±2%, (K) ; ±10%,(M) ; ±20% tolerance.

2. CAPACITORS :
   Indicated in capacity (μF) /voltage (V) unless otherwise noted p ; pF.
   Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE CURRENT :
   ▭ ; DC voltage (V) in stop mode.
   ←mA ; DC current in stop mode.

4. OTHERS :
   ➔ ; Signal route.
   ⊘ ; Adjusting point
   The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
   ※ marked capacitors and resistors have parts numbers.

   This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

CT-W801R and CT-W851R

5. SWITCHES (The underlined indicates the switch position)

MAIN UNIT
S1201 : POWER SW ON – OFF

OPERATE 1 UNIT
S1301 : FWD
S1302 : REV
S1303 : STOP
S1305 : FF
S1306 : REW

OPERATE 2 UNIT
S1401 : FWD
S1402 : REV
S1403 : STOP
S1406 : REV

DISPLAY UNIT
S1501 : 1 – REC
S1502 : 1 – PAUSE
S1503 : 1 – MUTE
S1504 : 2 – REC
S1505 : 2 – PAUSE
S1506 : 2 – MUTE
S1507 : 1 – BLE
S1508 : 2 – BLE
S1510 : CD SYNC
S1511 : RESET 1 – COUNTER
S1512 : MODE 1 – COUNTER
S1513 : RESET 2 – COUNTER
S1514 : MODE 2 – COUNTER
S1515 : X1 COPY
S1516 : X2 COPY
S1517 : PARAREC
S1518 : RELAY/SKIP
S1520 : I DOLBY B – OFF – C
S1521 : II DOLBY B – OFF – C
S1522 : CAR – NOR – HP
S1523 : TIMER REC – OFF – PLAY
S1524 : ⇄ – ↩ – ↻

CT-W701R

5. SWITCHES (The underlined indicates the switch position)

MAIN UNIT
S1201 : POWER SW ON – OFF

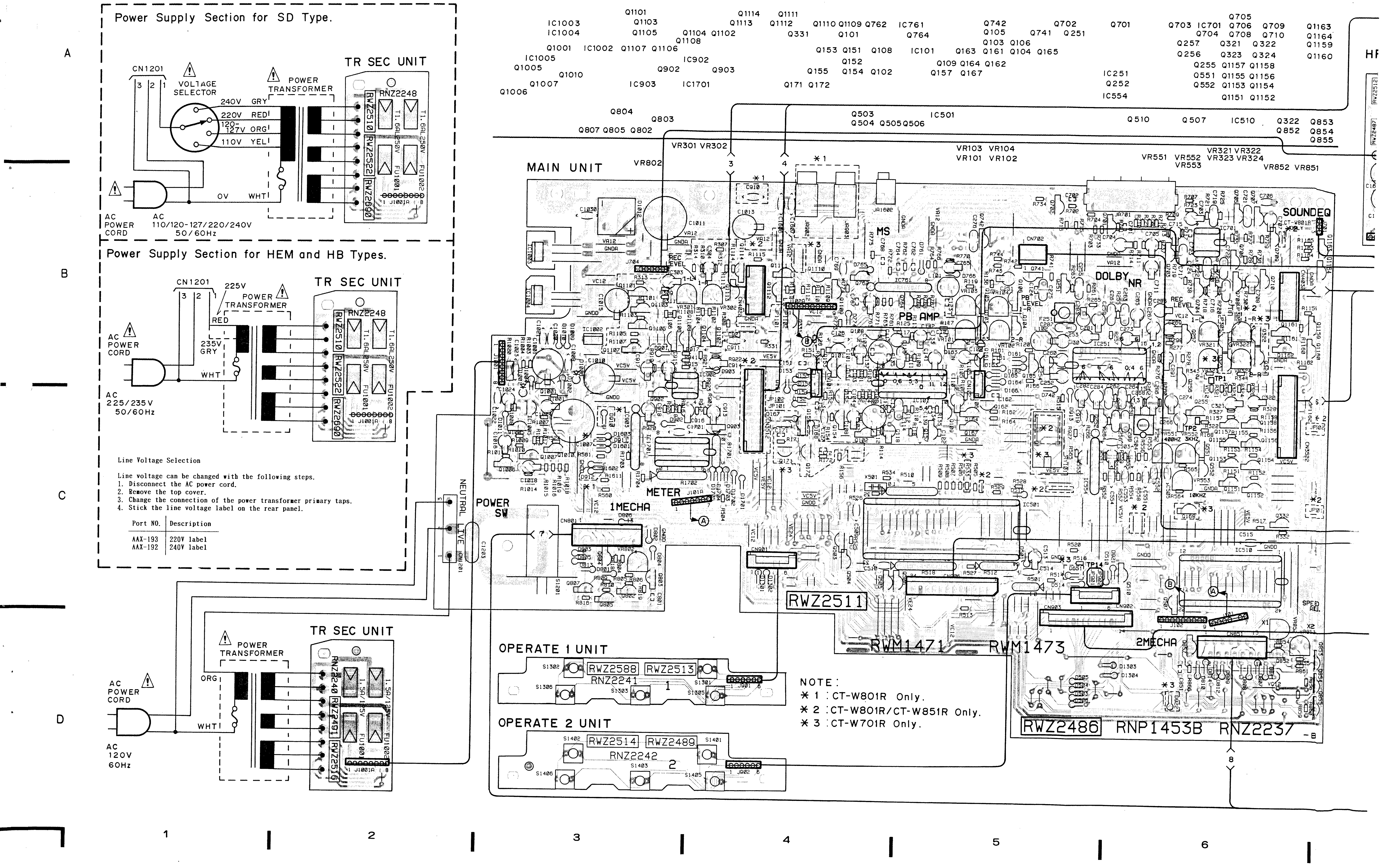
OPERATE 1 UNIT
S1301 : FWD
S1302 : REV
S1303 : STOP
S1305 : FF
S1306 : REW

OPERATE 2 UNIT
S1401 : FWD
S1402 : REV
S1403 : STOP
S1406 : REV

DISPLAY UNIT
S1501 : 1 – REC
S1502 : 1 – PAUSE
S1503 : 1 – MUTE
S1504 : 2 – REC
S1505 : 2 – PAUSE
S1506 : 2 – MUTE
S1507 : 1 – BLE
S1508 : 2 – BLE
S1510 : CD SYNC
S1511 : RESET 1 – COUNTER
S1512 : MODE 1 – COUNTER
S1513 : RESET 2 – COUNTER
S1514 : MODE 2 – COUNTER
S1515 : X1 COPY
S1516 : X2 COPY
S1518 : RELAY/SKIP
S1520 : I DOLBY B – OFF – C
S1521 : II DOLBY B – OFF – C
S1522 : CAR – NOR – HP
S1523 : TIMER REC – OFF – PLAY
S1524 : ⇄ – ↩ – ↻

5. PCB CONNECTIONS DIAGRAM

- View from component side


Power Supply Section for SD Type.
CN1201
VOLTAGE SELECTOR
POWER TRANSFORMER
TR SEC UNIT
RNZ2248
RWZ2510
RWZ2522
RWZ2690
240V GRY
220V RED
120-127V ORG
110V YEL
OV WHT
AC POWER CORD
AC 110/120-127/220/240V 50/60Hz
T1.6AL250V
FU1001
FU1002
J1001A
Power Supply Section for HEM and HB Types.
225V
235V GRY
RED
WHT
AC 225/235V 50/60Hz
POWER TRANSFORMER
ORG
WHT
AC 120V 60Hz
RNZ2240
RWZ2491
RWZ2516
T1.5A/125V
MAIN UNIT
REC LEVEL
MS
PB AMP
DOLBY NR
PB LEVEL
REC LEVEL
SOUNDEQ
METER
1MECHA
2MECHA
POWER SW
NEUTRAL
LIVE
CN1201
S1201
RWZ2511
RWM1471
RWM1473
RWZ2486
RNP1453B
RNZ2237
OPERATE 1 UNIT
RWZ2588
RWZ2513
RNZ2241
S1302
S1306
S1303
S1301
S1305
J801
OPERATE 2 UNIT
RWZ2514
RWZ2489
RNZ2242
S1402
S1406
S1403
S1401
S1405
J802
TP1
TP2
400HZ
3KHZ
10KHZ
TP14
SPEED ADJ.
VR301 VR302
VR802
VR103 VR104
VR101 VR102
VR551 VR552
VR553
VR321 VR322
VR323 VR324
VR852 VR851
1
2
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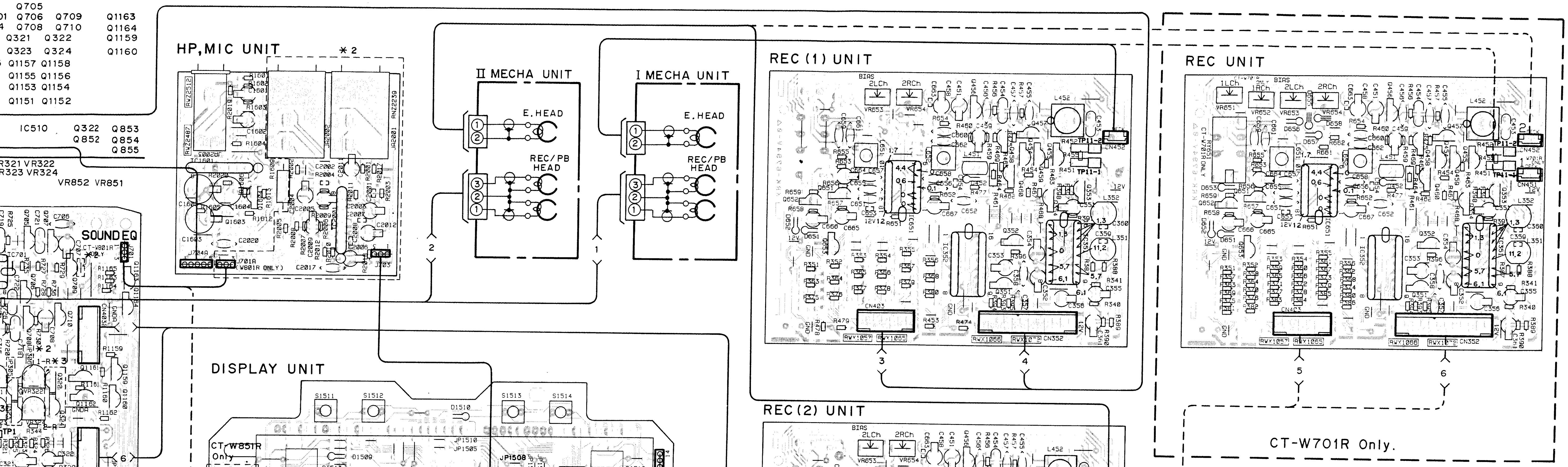
4
5
6
A
B
C
D

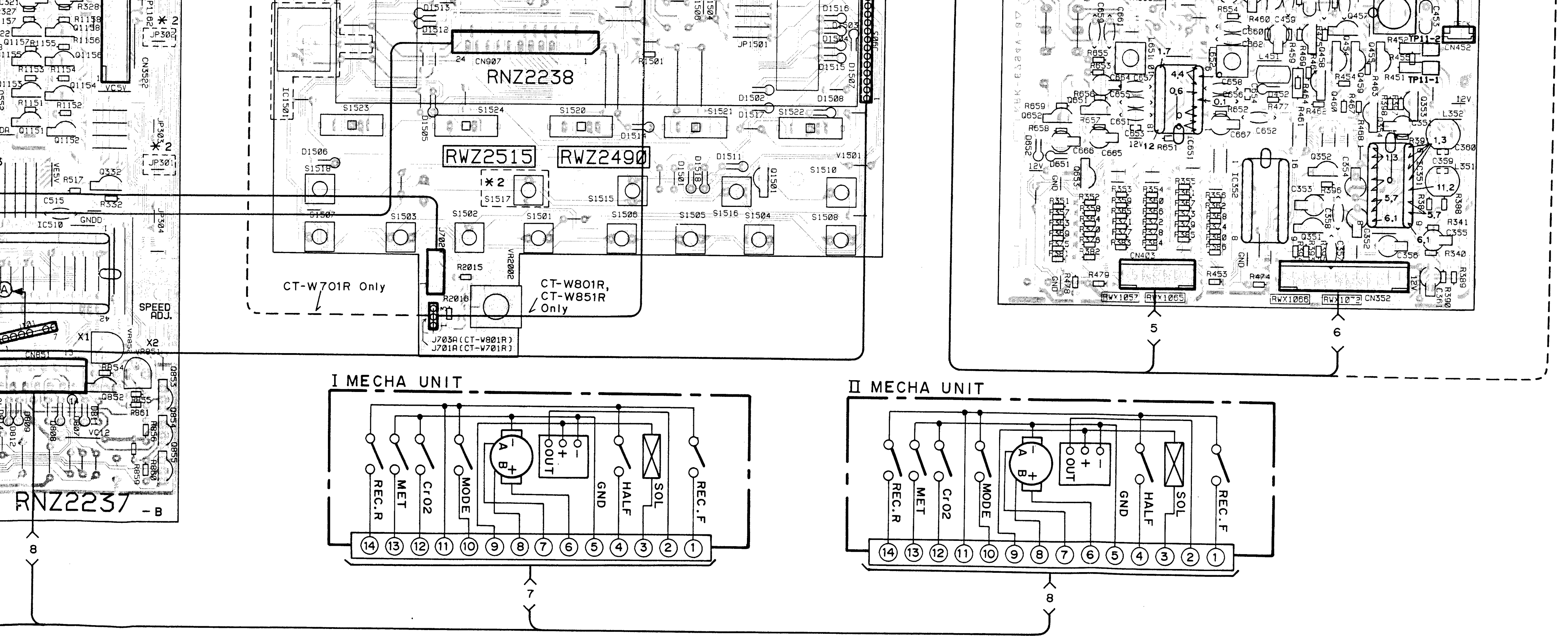
Line Voltage Selection

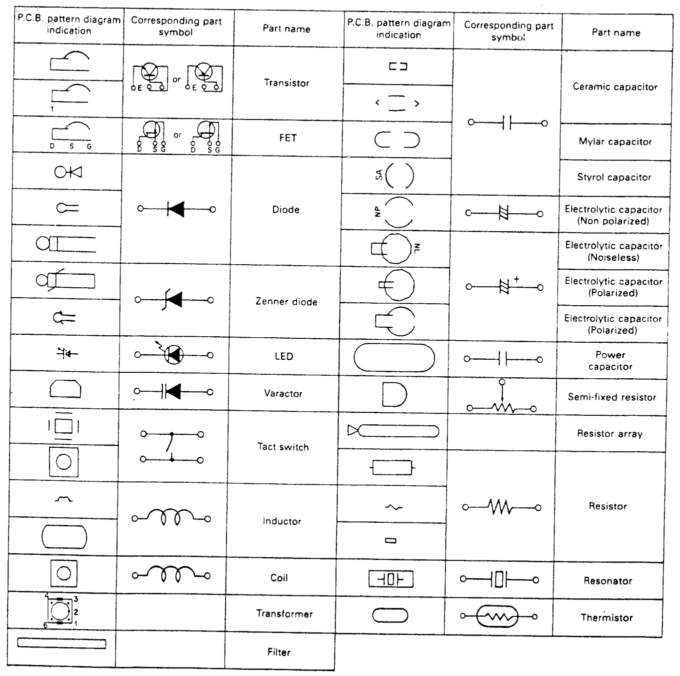
Line voltage can be changed with the following steps.
1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection of the power transformer primary taps.
4. Stick the line voltage label on the rear panel.

Port NO.	Description
AAX-193	220V label
AAX-192	240V label

NOTE:
＊1 : CT-W801R Only.
＊2 : CT-W801R/CT-W851R Only.
＊3 : CT-W701R Only.


Q705
Q706 Q709 Q1163
Q708 Q710 Q1164
Q321 Q322 Q1159
Q323 Q324 Q1160
Q1157 Q1158
Q1155 Q1156
Q1153 Q1154
Q1151 Q1152
IC510 Q322 Q853
Q852 Q854
Q855
VR321 VR322
VR323 VR324
VR852 VR851
SOUND EQ
HP,MIC UNIT
*2
J701A (W801R ONLY)
J703
II MECHA UNIT
E.HEAD
REC/PB HEAD
I MECHA UNIT
E.HEAD
REC/PB HEAD
2
1
REC (1) UNIT
BIAS
2LCh
2RCh
L452
CN452
TP11-2
TP11-1
CN403
CN352
RWX1057
RWX1065
RWX1066
3
4
REC UNIT
1LCh
1RCh
2LCh
2RCh
CT-W701R ONLY
TP11-2
TP11-1
5
6
DISPLAY UNIT
CT-W701R Only.
A
B

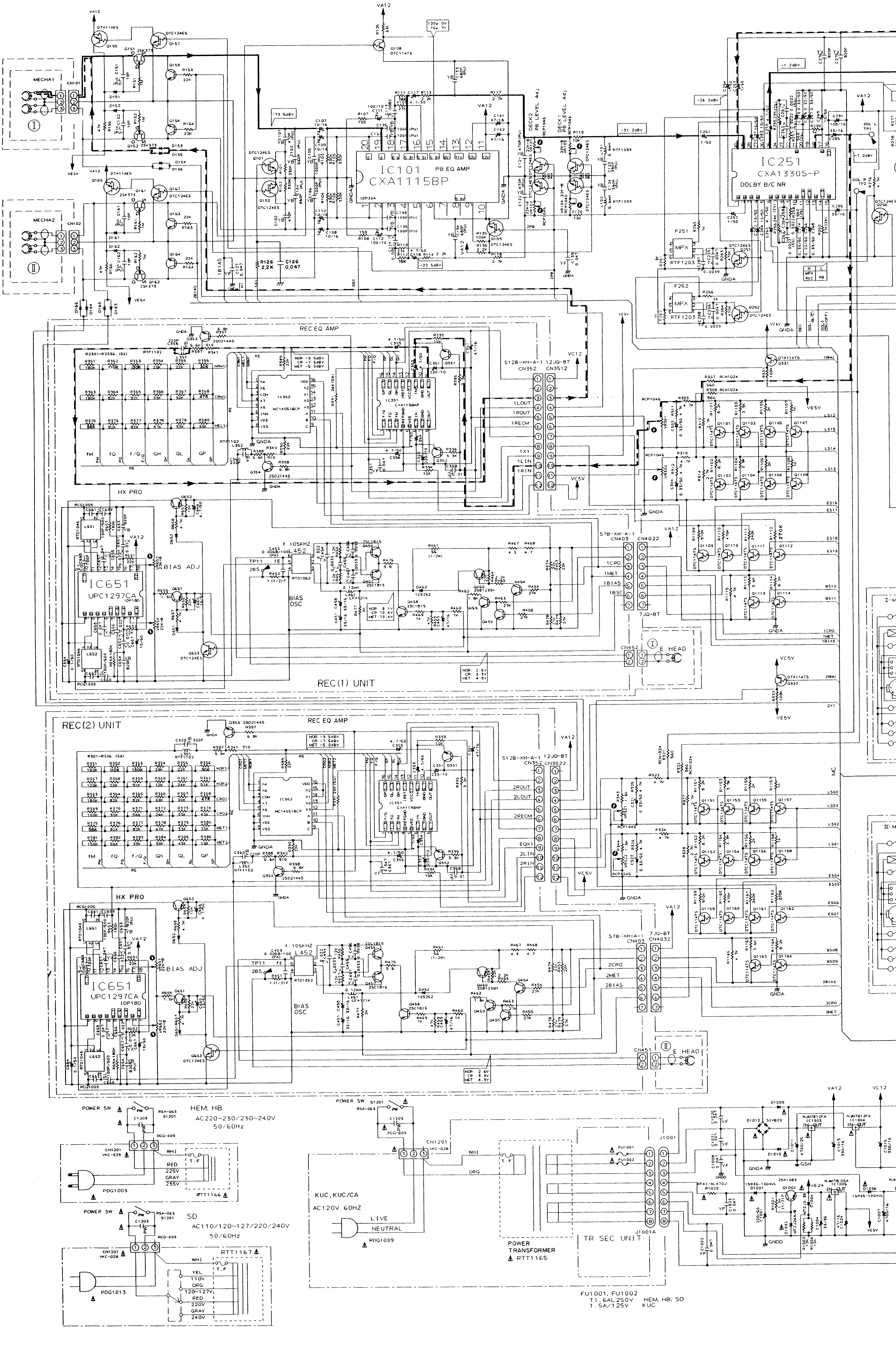

DISPLAY UNIT
CT-W851R Only
RNZ2238
CN907
RWZ2515
RWZ2490
*2
S1511
S1512
S1513
S1514
S1517
S1518
S1501
S1502
S1503
S1504
S1505
S1506
S1507
S1508
S1510
S1515
S1516
CT-W701R Only
CT-W801R, CT-W851R Only
J703A (CT-W801R)
J701A (CT-W701R)
REC (2) UNIT
BIAS
2LCh
2RCh
L452
CN452
TP11-2
TP11-1
CN403
CN352
RWX1057
RWX1065
RWX1066
5
6
SPEED ADJ.
RNZ2237 - B
8
I MECHA UNIT
REC.R
MET
Cr02
MODE
OUT
GND
HALF
SOL
REC.F
⑭ ⑬ ⑫ ⑪ ⑩ ⑨ ⑧ ⑦ ⑥ ⑤ ④ ③ ② ①
7
II MECHA UNIT
REC.R
MET
Cr02
MODE
OUT
GND
HALF
SOL
REC.F
⑭ ⑬ ⑫ ⑪ ⑩ ⑨ ⑧ ⑦ ⑥ ⑤ ④ ③ ② ①
8
C
D

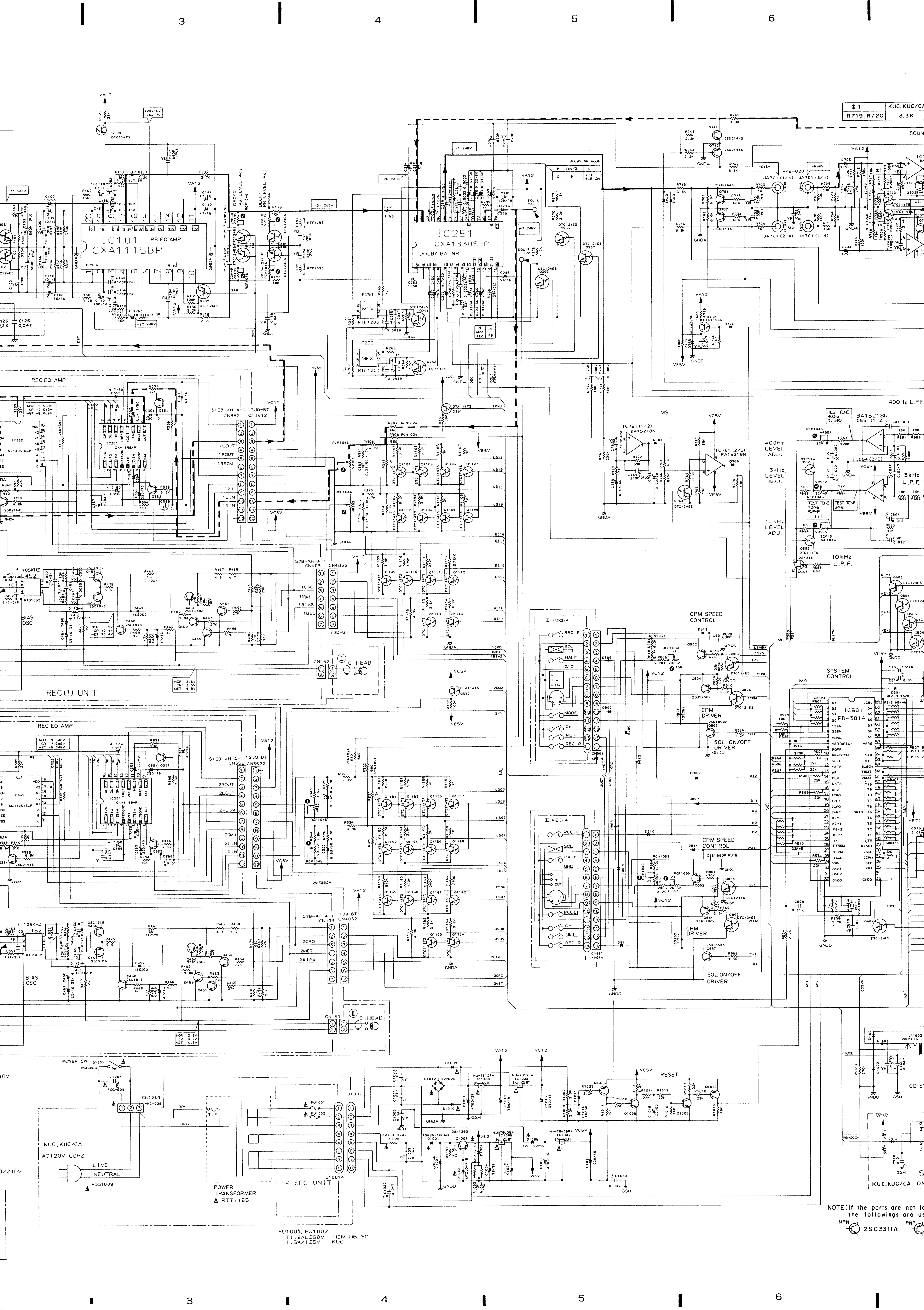


P.C.B. pattern diagram indication	Corresponding part symbol	Part name	P.C.B. pattern diagram indication	Corresponding part symbol	Part name
	or	Transistor			Ceramic capacitor
	or	FET			Mylar capacitor
		Diode	SA		Styrol capacitor
			NP		Electrolytic capacitor (Non polarized)
			NL		Electrolytic capacitor (Noiseless)
		Zenner diode		+	Electrolytic capacitor (Polarized)
					Electrolytic capacitor (Polarized)
		LED			Power capacitor
		Varactor			Semi-fixed resistor
		Tact switch			Resistor array
		Inductor			Resistor
		Coil			Resonator
		Transformer			Thermistor
		Filter			

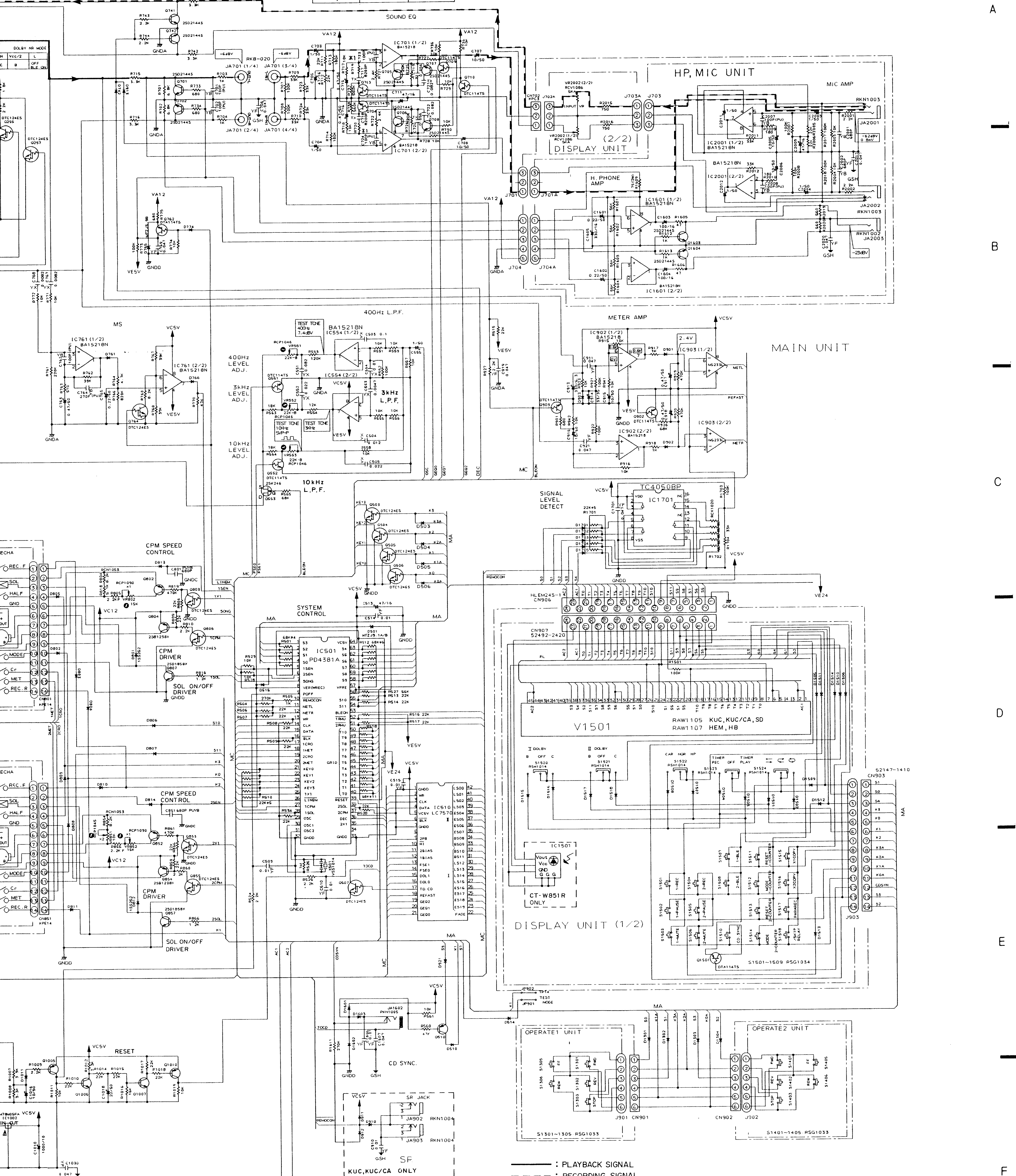
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the above Table.
3. The capacitor terminal marked with ▭ shows negative terminal.
4. The diode marked with ○ shows cathode side.
5. The transistor terminal marked with ▭ shows emitter.

CT-W801R AND CT-W851R


1
2
3
4
A
B
C
D
E
F
MECHA1
MECHA2
CN101
CN102
VA12
DTA114ES
DTC124ES
2SK373
VE5V
IC101
CXA1115BP
PB EQ AMP
IDP20A
DECK2 PB LEVEL Adj
DECK1 PB LEVEL Adj
RTF1099
IC251
CXA1330S-P
DOLBY B/C NR
F251
F252
MPX
RTF1203
REC EQ AMP
IC352
MC14051BCP
IC351
CXA1198AP
NOR -9.5dBV
CR -7.5dBV
MET -5.0dBV
S12B-XH-A-1
12JQ-BT
CN352
CN3512
CN3522
1LOUT
1ROUT
1RECM
1X1
1LIN
1RIN
2ROUT
2LOUT
2RECM
EQX1
2LIN
2RIN
VC12
VC5V
HX PRO
IC651
UPC1297CA
IDP18D
BIAS ADJ
BIAS OSC
f 105KHZ
L452
TP11
2BS
S7B-XH-A-1
7JQ-BT
CN403
CN4022
CN4032
1CRO
1MET
1BIAS
1BSC
2CRO
2MET
2BIAS
CN452
CN451
E.HEAD
REC(1) UNIT
REC(2) UNIT
NOR 2.6V
CR 3.3V
MET 4.9V
GNDA
POWER SW
S1201
RSA-063
C1203
RCG-009
CN1201
VKC-028
HEM, HB
AC220~230/230~240V
50/60Hz
WHI
RED
225V
GRAY
235V
T.F
PDG1003
RTT1166
SD
AC110/120-127/220/240V
50/60Hz
RTT1167
YEL
110V
ORG
120-127V
220V
240V
PDG1013
KUC, KUC/CA
AC120V 60HZ
LIVE
NEUTRAL
RDG1009
POWER TRANSFORMER
RTT1165
TR SEC UNIT
J1001
J1001A
FU1001
FU1002
FU1001, FU1002
T1.6AL250V HEM, HB, SD
1.5A/125V KUC
NJM7812FA
IC1003
NJM78L05A
IC1005
2SA1203
Q1001
VE24
GSH
GNDD

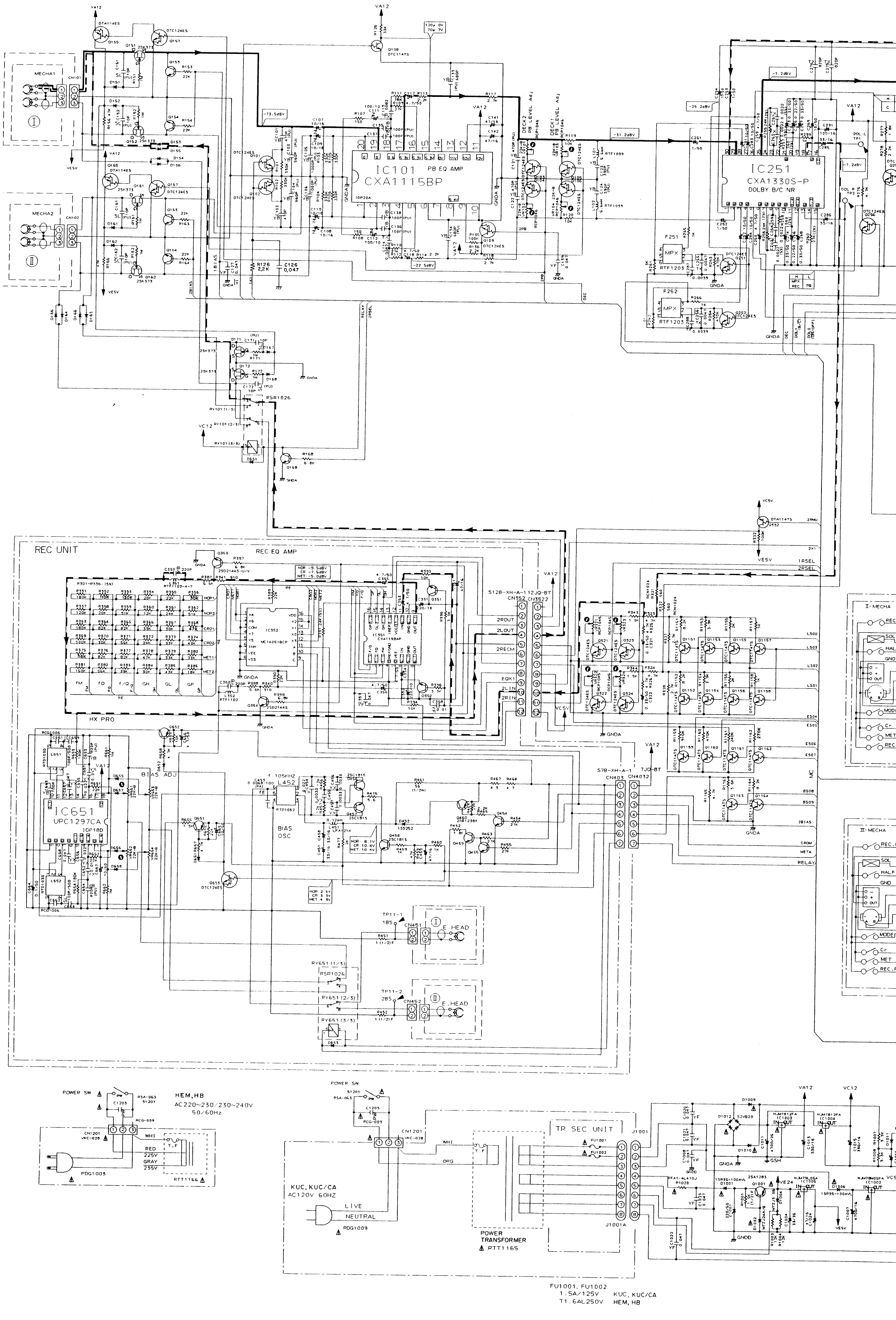

3
4
5
6
※1 | KUC,KUC/CA
R719,R720 | 3.3K
IC101 PB EQ AMP CXA1115BP
DECK2 PB LEVEL Adj.
DECK1 PB LEVEL Adj.
IC251 CXA1330S-P DOLBY B/C NR
DOLBY NR MODE
F251 MPX RTF1203
F252 MPX RTF1203
RTF1099
DOL L TP1
DOL R TP2
VA12
VC12
VC5V
VE5V
GNDA
GNDD
GSH
REC EQ AMP
IC352 MC14051BCP
IC351 CXA1198AP
S12B-XH-A-1 CN352
12JQ-BT CN3512
12JQ-BT CN3522
S7B-XH-A-1 CN403
7JQ-BT CN4022
7JQ-BT CN4032
BIAS OSC
f 105KHZ
L452
REC(1) UNIT
CN452 Ⅰ E. HEAD
CN451 Ⅱ E. HEAD
NOR 2.6V CR 3.3V MET 4.9V
MS
IC761 (1/2) BA15218N
IC761 (2/2) BA15218N
JA701 (1/4)
JA701 (2/4)
JA701 (3/4)
JA701 (4/4)
RKB-020
SOUN
400Hz L.P.F.
400Hz LEVEL ADJ.
3kHz LEVEL ADJ.
3kHz L.P.F.
10kHz LEVEL ADJ.
10kHz L.P.F.
BA15218N IC554 (1/2)
IC554 (2/2)
TEST TONE 400Hz 7.4dBV
TEST TONE 10Hz 5MP-P
TEST TONE 3Hz
Ⅰ-MECHA
Ⅱ-MECHA
REC.F
SOL
HALF
GND
MODE
Cr
MET
REC.R
CN801 XPE14
CN851 XPE14
CPM SPEED CONTROL
CPM DRIVER
SOL ON/OFF DRIVER
SYSTEM CONTROL
IC501 PD4381A
MA
MC
RESET
POWER SW S1201
CN1201
KUC,KUC/CA
AC120V 60HZ
LIVE
NEUTRAL
RDG1009
POWER TRANSFORMER
RTT1165
TR SEC UNIT
J1001
J1001A
FU1001, FU1002
T1.6AL250V HEM, HB, SD
1.5A/125V KUC
NJM7812FA IC1003
NJM7812FA IC1004
NJM79L05A IC1005
NJM78M05FA IC1002
CD SY
KUC,KUC/CA ON
NOTE: If the parts are not id
the followings are us
NPN 2SC3311A
PNP

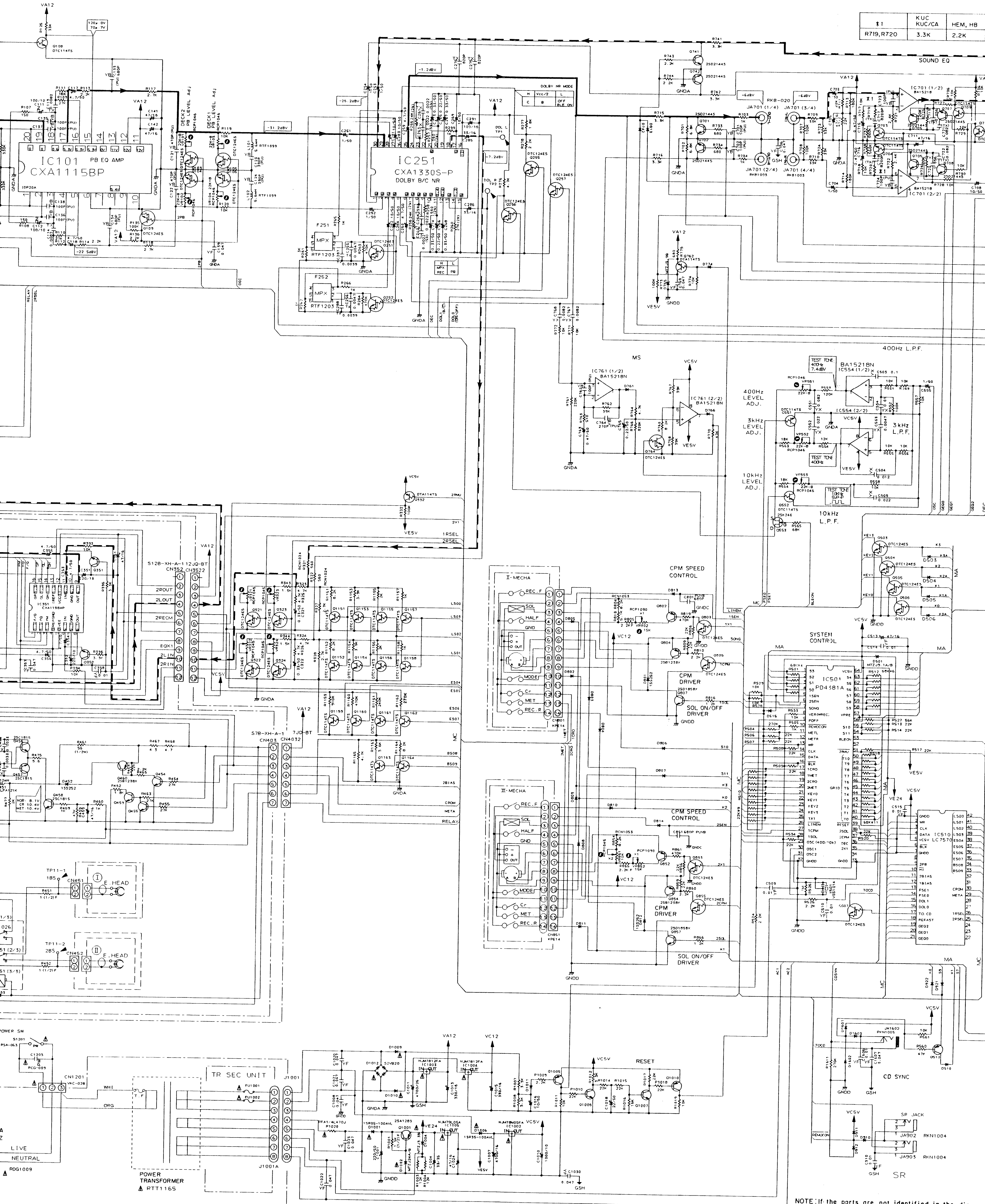
※1	KUC,KUC/CA	HEM,HB,SD
R719,R720	3.3K	2.2K


SOUND EQ
HP, MIC UNIT
MIC AMP
DISPLAY UNIT (2/2)
H. PHONE AMP
MAIN UNIT
METER AMP
MS
400Hz L.P.F.
400Hz LEVEL ADJ.
3kHz LEVEL ADJ.
10kHz LEVEL ADJ.
3kHz L.P.F.
10kHz L.P.F.
TEST TONE
SIGNAL LEVEL DETECT
TC4050BP
IC1701
CPM SPEED CONTROL
CPM DRIVER
SOL ON/OFF DRIVER
SYSTEM CONTROL
IC501 PD4381A
IC510 LC7570
V1501
RAW1105 KUC,KUC/CA,SD
RAW1107 HEM,HB
DISPLAY UNIT (1/2)
IC1501
CT-W851R ONLY
CD SYNC.
RESET
SR JACK
SF
KUC,KUC/CA ONLY
OPERATE1 UNIT
OPERATE2 UNIT
S1301~1305 RSG1033
S1401~1405 RSG1033
S1501~1509 RSG1034
A
B
C
D
E
F

————— : PLAYBACK SIGNAL
- - - - - : RECORDING SIGNAL
► : MEASURMENT POINT

NOTE: If the parts are not identified in the diagram the followings are used.
NPN 2SC3311A PNP 2SA1309A 1SS254


MECHA1
MECHA2
IC101 PB EQ AMP
CXA1115BP
IC251
CXA1330S-P
DOLBY B/C NR
F251 MPX RTF1203
F252 MPX RTF1203
RSR1026
RY101
REC UNIT
REC EQ AMP
IC352 MC14051BCP
IC351 CXA1119BAP
HX PRO
IC651
UPC1297CA
BIAS ADJ
BIAS OSC
f: 105KHZ
L452
S12B-XH-A-1
12JQ-BT
CN352 CN3522
2ROUT
2LOUT
2RECM
EQX1
2LIN
2RIN
S7B-XH-A-1
7JQ-BT
CN403 CN4032
E.HEAD
TP11-1
TP11-2
CN451
CN452
RY651
I-MECHA
II-MECHA
POWER SW
HEM,HB
AC220~230/230~240V
50/60Hz
PDG1003
RTT1166
KUC,KUC/CA
AC120V 60HZ
LIVE
NEUTRAL
PDG1009
POWER TRANSFORMER
RTT1165
TR SEC UNIT
J1001
J1001A
FU1001, FU1002
1.5A/125V KUC, KUC/CA
T1.6AL250V HEM, HB
VA12
VC12
VE5V
GNDA

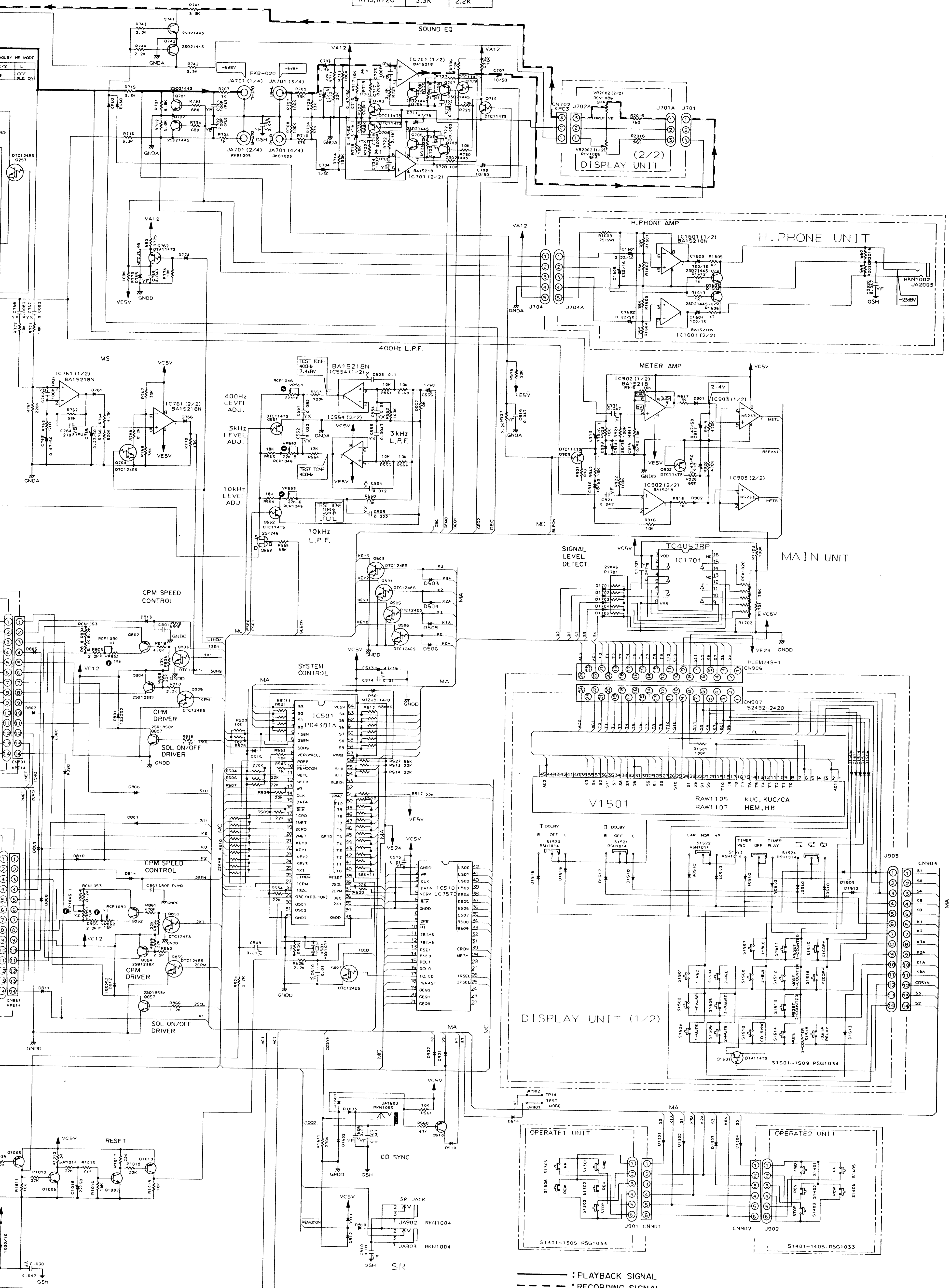

IC101 CXA1115BP PB EQ AMP
DECK2 PB LEVEL Adj
DECK1 PB LEVEL Adj
IC251 CXA1330S-P DOLBY B/C NR
DOLBY NR MODE
F251 MPX RTF1203
F252 MPX RTF1203
SOUND EQ
IC701 (1/2) BA15218
IC701 (2/2) BA15218
JA701 (1/4) RKB-020 JA701 (3/4)
JA701 (2/4) RKB1003 JA701 (4/4) RKB1003
MS
IC761 (1/2) BA15218N
IC761 (2/2) BA15218N
400Hz L.P.F.
BA15218N IC554 (1/2)
IC554 (2/2)
TEST TONE 400Hz 7.4dBV
400Hz LEVEL ADJ.
3kHz LEVEL ADJ.
3kHz L.P.F.
10kHz LEVEL ADJ.
10kHz L.P.F.
IC351 CXA1198AP
S12B-XH-A-1 12JQ-BT CN352 CN3522
S7B-XH-A-1 7JQ-BT CN403 CN4032
I-MECHA
II-MECHA
REC.F SOL HALF GND MODE Cr MET REC.R
CPM SPEED CONTROL
CPM DRIVER
SOL ON/OFF DRIVER
SYSTEM CONTROL
IC501 PD4581A
IC510 LC7570
TP11-1 CN451 E.HEAD
TP11-2 CN452 E.HEAD
POWER SW S1201
CN1201
LIVE NEUTRAL
POWER TRANSFORMER RTT1165
TR SEC UNIT
J1001 J1001A
NJM7812FA IC1003
NJM7812FA IC1004
NJM78M05FA IC1002
RESET
CD SYNC
SR JACK JA902 RKN1004 JA903 RKN1004
SR
VA12 VC12 VC5V VE5V VE24 GNDA GNDD GSH

✱1	KUC KUC/CA	HEM, HB
R719,R720	3.3K	2.2K

FU1001, FU1002
1.5A/125V KUC, KUC/CA
T1.6AL250V HEM, HB

NOTE: If the parts are not identified in the diagram the followings are used.
NPN 2SC3311A PNP 2SA1309A 1SS

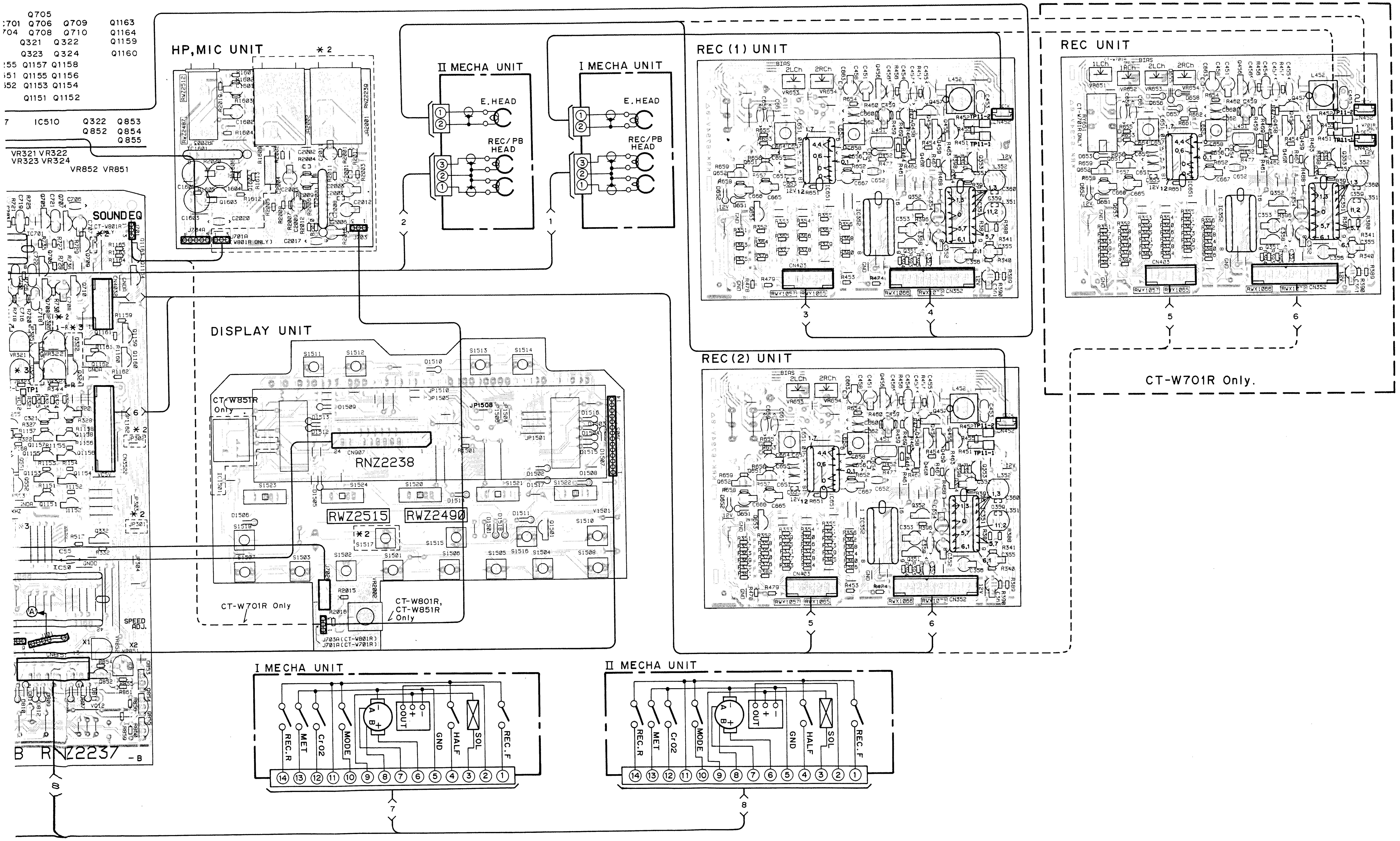
※1	KUC KUC/CA	HEM, HB
R719,R720	3.3K	2.2K


SOUND EQ
IC701 (1/2) BA15218
IC701 (2/2)
RKB-020
JA701 (1/4)
JA701 (3/4)
JA701 (2/4)
JA701 (4/4)
-6dBV
(2/2) DISPLAY UNIT
CN702 KPC3
J702A
J701A
J701
VR2002 (2/2) RCV1086
VR2002 (1/2) RCV1086
H.PHONE AMP
H. PHONE UNIT
IC1601 (1/2) BA15218N
IC1601 (2/2)
RKN1002 JA2005
-23dBV
J704
J704A
VA12
VE5V
MS
IC761 (1/2) BA15218N
IC761 (2/2) BA15218N
400Hz L.P.F.
TEST TONE 400Hz 7.4dBV
BA15218N IC554 (1/2)
IC554 (2/2)
400Hz LEVEL ADJ.
3kHz LEVEL ADJ.
10kHz LEVEL ADJ.
3kHz L.P.F.
10kHz L.P.F.
METER AMP
IC902 (1/2) BA15218
IC902 (2/2)
IC903 (1/2)
IC903 (2/2)
SIGNAL LEVEL DETECT.
TC4050BP IC1701
MAIN UNIT
CPM SPEED CONTROL
CPM DRIVER
SOL ON/OFF DRIVER
SYSTEM CONTROL
IC501 PD4581A
IC510 LC7570
HLEM24S-1 CN906
CN907 52492-2420
V1501
RAW1105 KUC, KUC/CA
RAW1107 HEM, HB
DISPLAY UNIT (1/2)
S1501~1509 RSG1034
J903
CN903
RESET
CD SYNC
SR JACK
JA902 RKN1004
JA903 RKN1004
SR
OPERATE1 UNIT
OPERATE2 UNIT
S1301~1305 RSG1033
S1401~1405 RSG1033
J901 CN901
CN902 J902
TEST MODE
MA
MC
GNDA
GNDD
GSH

— : PLAYBACK SIGNAL
- - - : RECORDING SIGNAL
► : MEASUREMENT POINT

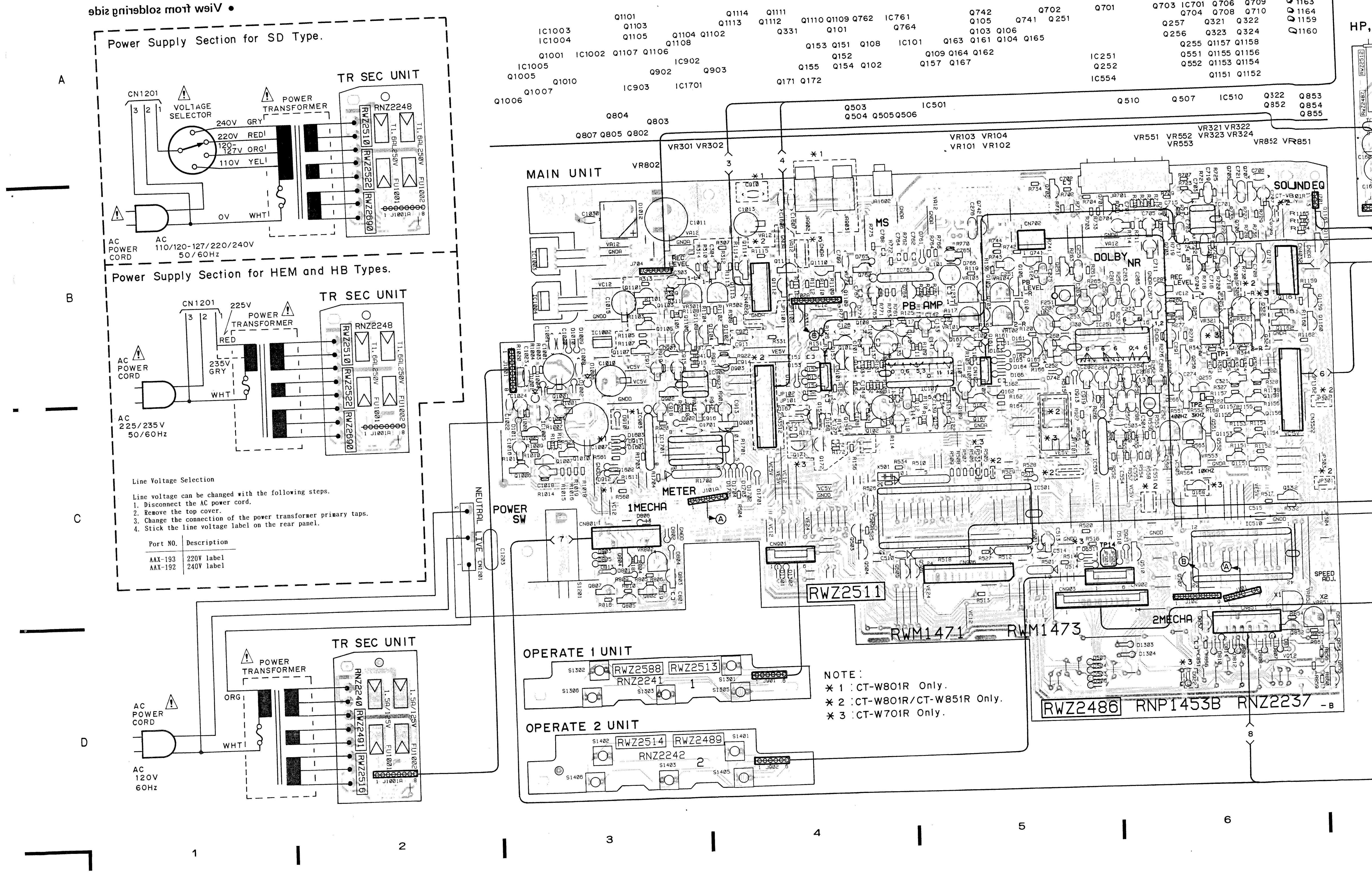
NOTE: If the parts are not identified in the diagram the followings are used.

NPN 2SC3311A PNP 2SA1309A 1SS254


HP,MIC UNIT
*2
II MECHA UNIT
E.HEAD
REC/PB HEAD
I MECHA UNIT
E.HEAD
REC/PB HEAD
REC (1) UNIT
REC UNIT
CT-W701R Only.
REC (2) UNIT
DISPLAY UNIT
CT-W851R Only
RNZ2238
RWZ2515
RWZ2490
CT-W701R Only
CT-W801R, CT-W851R Only
J703A(CT-W801R)
J701A(CT-W701R)
SOUND EQ
SPEED ADJ.
RNZ2237 -B
I MECHA UNIT
REC.R
MET
CrO2
MODE
OUT
GND
HALF
SOL
REC.F
II MECHA UNIT
REC.R
MET
CrO2
MODE
OUT
GND
HALF
SOL
REC.F
1
2
3
4
5
6
7
8

5. PCB CONNECTIONS DIAGRAM

• View from soldering side


Power Supply Section for SD Type.
TR SEC UNIT
CN1201
VOLTAGE SELECTOR
POWER TRANSFORMER
RNZ2248
RWZ2510
RWZ2522
RWZ2690
240V GRY
220V RED
120-127V ORG
110V YEL
0V WHT
T1.6AL250V
T1.6AL250V
FU1001
FU1002
J1001A
AC POWER CORD
AC 110/120-127/220/240V 50/60Hz
Power Supply Section for HEM and HB Types.
TR SEC UNIT
CN1201
225V
POWER TRANSFORMER
RED
235V GRY
WHT
RNZ2248
RWZ2510
RWZ2522
RWZ2690
AC POWER CORD
AC 225/235V 50/60Hz
TR SEC UNIT
POWER TRANSFORMER
ORG
WHT
RNZ2240
RWZ2491
RWZ2516
1.5A/125V
1.5A/125V
FU1001
FU1002
J1001A
AC POWER CORD
AC 120V 60Hz
NEUTRAL
LIVE
CN1201
POWER SW
S1201
MAIN UNIT
REC LEVEL
MS
PB AMP
DOLBY NR
PB LEVEL
REC LEVEL
SOUND EQ
METER
1MECHA
2MECHA
SPEED ADJ.
TP1
TP2
400Hz
3kHz
10kHz
RWZ2511
RWM1471
RWM1473
RWZ2486
RNP1453B
RNZ2237-B
OPERATE 1 UNIT
RWZ2588
RWZ2513
RNZ2241
S1302
S1301
S1306
S1303
S1305
OPERATE 2 UNIT
RWZ2514
RWZ2489
RNZ2242
S1402
S1401
S1403
S1405
S1406
HP,
IC1003
IC1004
IC1005
Q1005
Q1006
Q1007
Q1010
Q1001
IC1002
Q1107
Q1106
Q1101
Q1103
Q1105
Q1104
Q1102
Q1108
Q902
IC903
IC902
Q903
IC1701
Q1114
Q1113
Q1111
Q1112
Q331
Q1110
Q1109
Q762
Q101
IC761
Q764
IC101
Q153
Q151
Q108
Q152
Q154
Q102
Q155
Q171
Q172
Q742
Q105
Q103
Q106
Q741
Q702
Q251
Q104
Q165
Q163
Q161
Q109
Q164
Q162
Q157
Q167
Q701
Q703
IC701
Q704
Q705
Q706
Q708
Q709
Q710
Q257
Q321
Q322
Q256
Q323
Q324
Q255
Q1157
Q1158
Q551
Q1155
Q1156
Q552
Q1153
Q1154
Q1151
Q1152
IC251
Q252
IC554
Q1163
Q1164
Q1159
Q1160
Q804
Q803
Q807
Q805
Q802
Q503
Q504
Q505
Q506
IC501
Q510
Q507
IC510
Q322
Q852
Q853
Q854
Q855
VR802
VR301
VR302
VR103
VR104
VR101
VR102
VR551
VR552
VR553
VR321
VR322
VR323
VR324
VR852
VR851
CN901
CN903
CN902
JA1602
X1
X2
NOTE:
✱1 :CT-W801R Only.
✱2 :CT-W801R/CT-W851R Only.
✱3 :CT-W701R Only.
1
2
3
4
5
6
A
B
C
D

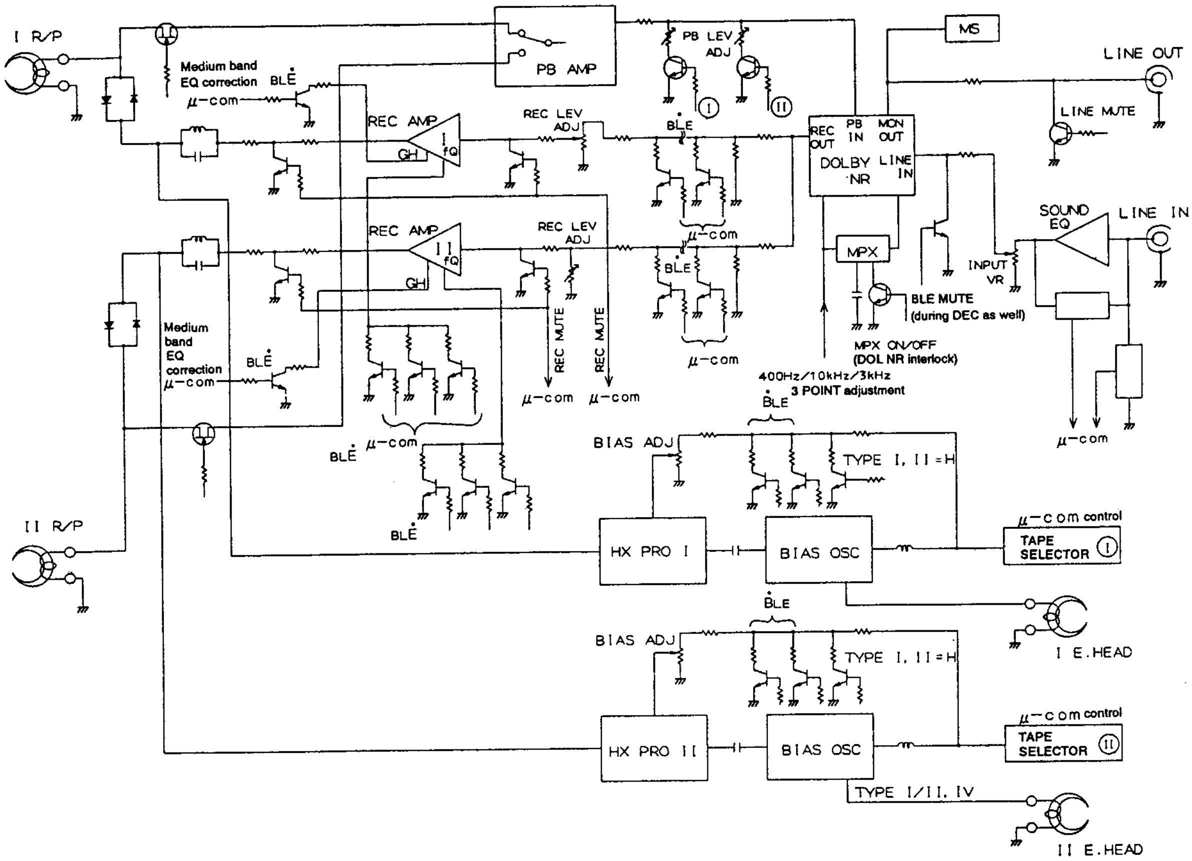
Line Voltage Selection

Line voltage can be changed with the following steps.
1. Disconnect the AC power cord.
2. Remove the top cover.
3. Change the connection of the power transformer primary taps.
4. Stick the line voltage label on the rear panel.

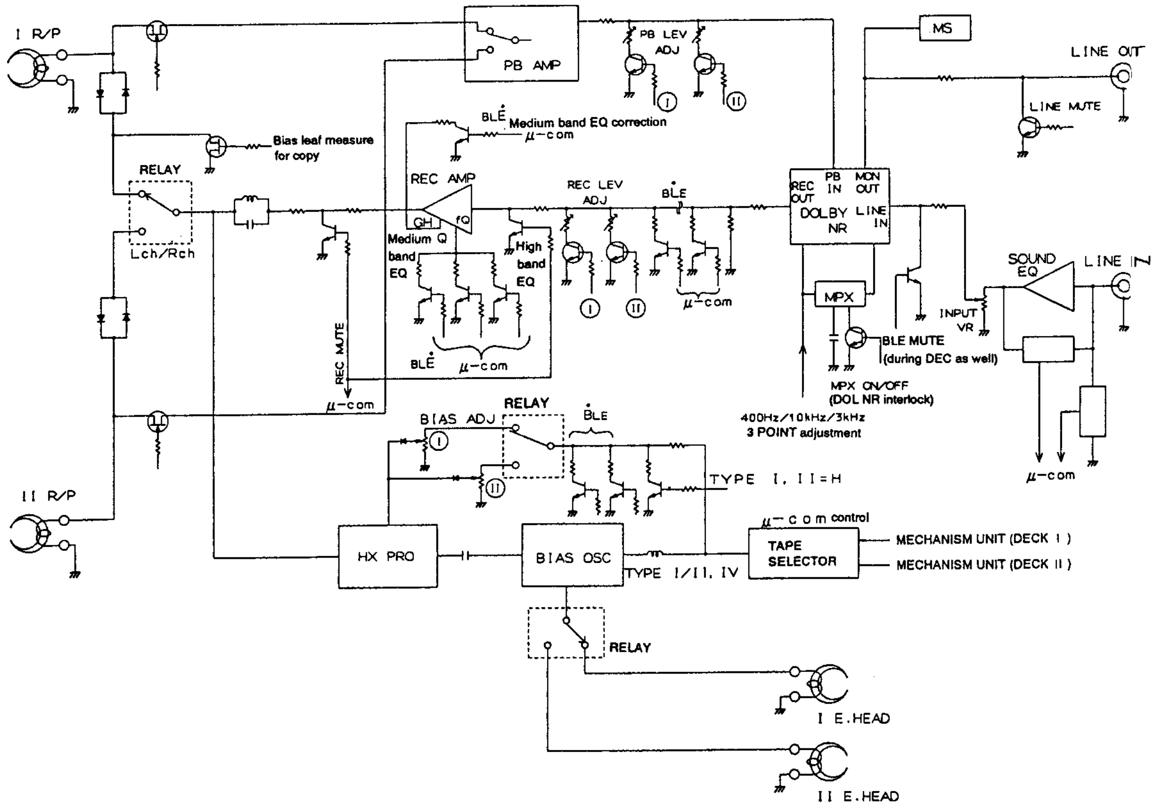
Port NO.	Description
AAX-193	220V label
AAX-192	240V label

6. BLOCK DIAGRAM

CT-W801R, CT-W851R


I R/P
Medium band EQ correction
BLE
μ-com
PB AMP
PB LEV ADJ
Ⓘ
Ⓘ
MS
LINE OUT
LINE MUTE
REC AMP
I
fQ
GH
REC LEV ADJ
BLE
REC OUT
PB IN
MON OUT
DOLBY NR
LINE IN
SOUND EQ
LINE IN
REC AMP
II
fQ
GH
REC LEV ADJ
μ-com
BLE
MPX
INPUT VR
BLE MUTE (during DEC as well)
Medium band EQ correction
BLE
μ-com
REC MUTE
REC MUTE
μ-com
μ-com
μ-com
MPX ON/OFF (DOL NR interlock)
400Hz/10kHz/3kHz
3 POINT adjustment
BLE
μ-com
BLE
μ-com
BIAS ADJ
TYPE I, II=H
BLE
II R/P
HX PRO I
BIAS OSC
μ-com control
TAPE SELECTOR Ⓘ
BLE
I E.HEAD
BIAS ADJ
TYPE I, II=H
HX PRO II
BIAS OSC
μ-com control
TAPE SELECTOR Ⓘ
TYPE I/II, IV
II E.HEAD

CT-W701R


I R/P
PB AMP
PB LEV ADJ
Ⓘ
Ⓘ
MS
LINE OUT
LINE MUTE
BLE Medium band EQ correction
μ-com
Bias leaf measure for copy
RELAY
Lch/Rch
REC AMP
GH
fQ
Medium Q band EQ
High band EQ
REC LEV ADJ
BLE
Ⓘ
Ⓘ
μ-com
REC OUT
PB IN
MON OUT
DOLBY NR
LINE IN
SOUND EQ
LINE IN
MPX
INPUT VR
BLE MUTE (during DEC as well)
MPX ON/OFF (DOL NR interlock)
400Hz/10kHz/3kHz
3 POINT adjustment
μ-com
REC MUTE
BLE
μ-com
μ-com
RELAY
BIAS ADJ
Ⓘ
Ⓘ
BLE
TYPE I, II=H
II R/P
HX PRO
BIAS OSC
TYPE I/II, IV
μ-com control
TAPE SELECTOR
MECHANISM UNIT (DECK I)
MECHANISM UNIT (DECK II)
RELAY
I E.HEAD
II E.HEAD

7. PCB PARTS LIST

● CT-W801R/KUC, KUC/CA and CT-W701R/KUC, KUC/CA types

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%)

560 Ω $\rightarrow 56 \times 10^{1} \rightarrow 561$ ································ RD1/4PS$\boxed{5}\boxed{6}\boxed{1}$J
47k Ω $\rightarrow 47 \times 10^{3} \rightarrow 473$ ································ RD1/4PS$\boxed{4}\boxed{7}\boxed{3}$J
0.5 Ω → 0R5 ································ RN2H$\boxed{0}\boxed{R}\boxed{5}$K
1 Ω → 010 ································ RS1P$\boxed{0}\boxed{1}\boxed{0}$K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω $\rightarrow 562 \times 10^{1} \rightarrow 5621$ ································ RN1/4SR$\boxed{5}\boxed{6}\boxed{2}\boxed{1}$F

NOTE : (*1) : CT-W801R/KUC, KUC/CA (*2) : CT-W701R/KUC, KUC/CA

LIST OF ASSEMBLIES

● (*1)

Mark	No.	Description	Part No.
NSP		REC(1)UNIT	RWX1065
NSP		REC(2)UNIT	RWX1066
⊙		MOTHER UNIT	RWM1471
NSP		├─MAIN UNIT	RWZ2486
NSP		├─HP, MIC UNIT	RWZ2487
NSP		├─OPERATE SW(1) UNIT	RWZ2488
NSP		├─OPERATE SW(2) UNIT	RWZ2489
NSP		├─DISPLAY UNIT	RWZ2490
NSP		└─TR SEC UNIT	RWZ2491

● (*2)

Mark	No.	Description	Part No.
NSP		REC UNIT	RWX1057
⊙		MOTHER UNIT	RWM1473
NSP		├─MAIN UNIT	RWZ2511
NSP		├─HP UNIT	RWZ2512
NSP		├─OPERATE SW(1) UNIT	RWZ2513
NSP		├─OPERATE SW(2) UNIT	RWZ2514
NSP		├─DISPLAY UNIT	RWZ2515
NSP		└─TR SEC UNIT	RWZ2516

REC (1) UNIT

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC351	REC EQUALIZER IC	CXA1198AP
	IC352		MC14051BCP
	IC651	DOLBY HX PRO IC	UPC1297CA
	Q351, 352	TRANSISTOR	2SC3311A
	Q353, 354	TRANSISTOR	2SD2144S
	Q454, 455	TRANSISTOR	2SC3311A
	Q456-458	TRANSISTOR	2SC1815
	Q459	TRANSISTOR	2SC3311A
	Q460	TRANSISTOR	2SB1238X
	Q651, 652	TRANSISTOR	2SA1309A
	Q653	TRANSISTOR	DTC124ES
	D452	DIODE	1SS252
	D651, 652	DIODE	1SS254

COILS/TRANSFORMERS

Mark	No.	Description	Part No.
	L351, 352	COIL	RTF1102
	L451	RADIAL INDUCTOR	LFA121K
	L452	COIL	RTD1062
	L651, 652	COIL	RTD1046

CAPACITORS

Mark	No.	Description	Part No.
	C351, 352	ELECT. CAPACITOR	CEAS221M10
	C353-356	ELECT. CAPACITOR	CEAS4R7M50
	C357	CERAMIC CAPACITOR	CGCYF473Z50
	C358	CERAMIC CAPACITOR	CKCYF103Z50
	C359, 360	AXIAL CAPACITOR	CKPUYB221K50
	C361	ELECT. CAPACITOR	CEAS470M16
	C451	ELECT. CAPACITOR	CEAS330M16
	C453	CAPACITOR	CQPA682J100
	C454	AUDIO FILM CAPACITOR	CFTXA223J50
	C455-457	CERAMIC CAPACITOR	CGCYX332K25
	C458	ELECT. CAPACITOR	CEAS330M16
	C459	ELECT. CAPACITOR	CEAS470M16
	C651, 652	CERAMIC CAPACITOR	CGCYX103K25
	C653, 654	AXIAL CAPACITOR	CKPUYB821K50
	C655, 656	CERAMIC CAPACITOR	CGCYX223K25
	C657, 658	CERAMIC CAPACITOR	CGCYF473Z50
	C659, 660	CERAMIC CAPACITOR	CCCSL101K500
	C661, 662	CERAMIC CAPACITOR	RCG1005
	C663	AXIAL CAPACITOR	CKPUYB101K50
	C664	ELECT. CAPACITOR	CEASR10M50
	C665	ELECT. CAPACITOR	CEAS100M50
	C666	ELECT. CAPACITOR	CEAS4R7M50
	C667	ELECT. CAPACITOR	CEAS100M50

RESISTORS

Mark	No.	Description	Part No.
	R340, 341	CARBONFILM RESISTOR	RD1/6PM□□□J
	R351-356	CARBONFILM RESISTOR	RD1/6PM□□□J
	R363-368	CARBONFILM RESISTOR	RD1/6PM□□□J
	R375-380	CARBONFILM RESISTOR	RD1/6PM□□□J
	R387-391	CARBONFILM RESISTOR	RD1/6PM□□□J
	R393-398	CARBONFILM RESISTOR	RD1/6PM□□□J
	R452	CARBONFILM RESISTOR	RD1/2LF□□□J

Mark	No.	Description	Part No.
	R453-457	CARBONFILM RESISTOR	RD1/6PM□□□J
	R459, 460	CARBONFILM RESISTOR	RD1/6PM□□□J
	R461	CARBONFILM RESISTOR	RD1/2LF□□□J
	R462-465	CARBONFILM RESISTOR	RD1/6PM□□□J
	R467-469	CARBONFILM RESISTOR	RD1/6PM□□□J
	R474, 475	CARBONFILM RESISTOR	RD1/6PM□□□J
	R477-479	CARBONFILM RESISTOR	RD1/6PM□□□J
	R651-659	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR653, 654	VR	VRTB6HS223

OTHERS

Mark	No.	Description	Part No.
	CN352		S12B-XH-A-1
	CN403		S7B-XH-A-1

REC (2) UNIT(*1)
REC UNIT(*2)

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC351	REC EQUALIZER IC	CXA1198AP
	IC352		MC14051BCP
	IC651	DOLBY HX PRO IC	UPC1297CA
	Q351, 352	TRANSISTOR	2SC3311A
	Q353, 354	TRANSISTOR	2SD2144S
	Q454, 455	TRANSISTOR	2SC3311A
	Q456-458	TRANSISTOR	2SC1815
	Q459	TRANSISTOR	2SC3311A
	Q460	TRANSISTOR	2SB1238X
	Q651, 652	TRANSISTOR	2SA1309A
	Q653	TRANSISTOR	DTC124ES
	D452	DIODE	1SS252
	D651, 652	DIODE	1SS254
	D653, 655-658	DIODE (*2)	1SS254

COILS/TRANSFORMERS

Mark	No.	Description	Part No.
	L351, 352	COIL	RTF1102
	L451	RADIAL INDUCTOR	LFA121K
	L452	COIL	RTD1062
	L651, 652	COIL (*1)	RTD1046
	L651, 652	COIL (*2)	RTD1030

RELAYS

Mark	No.	Description	Part No.
	RY651	RELAY (*2)	RSR1026

CAPACITORS

Mark	No.	Description	Part No.
	C351, 352	ELECT. CAPACITOR	CEAS221M10
	C353-356	ELECT. CAPACITOR	CEAS4R7M50
	C357	CERAMIC CAPACITOR	CGCYF473Z50
	C358	CERAMIC CAPACITOR	CKCYF103Z50
	C359, 360	AXIAL CAPACITOR	CKPUYB221K50
	C361	ELECT. CAPACITOR	CEAS470M16
	C451	ELECT. CAPACITOR	CEAS330M16
	C453	CAPACITOR	CQPA682J100
	C454	AUDIO FILM CAPACITOR	CFTXA223J50
	C455-457	CERAMIC CAPACITOR	CGCYX332K25
	C458	ELECT. CAPACITOR	CEAS330M16
	C459	ELECT. CAPACITOR	CEAS470M16
	C651, 652	CERAMIC CAPACITOR	CGCYX103K25
	C653, 654	AXIAL CAPACITOR	CKPUYB821K50
	C655, 656	CERAMIC CAPACITOR	CGCYX223K25
	C657, 658	CERAMIC CAPACITOR	CGCYF473Z50
	C659, 660	CERAMIC CAPACITOR	CCCSL101K500
	C661, 662	CERAMIC CAPACITOR (*1)	RCG1005
	C661, 662	CERAMIC CAPACITOR (*2)	RCG1006
	C663	AXIAL CAPACITOR	CKPUYB101K50
	C664	ELECT. CAPACITOR	CEASR10M50
	C665	ELECT. CAPACITOR	CEAS100M50
	C666	ELECT. CAPACITOR	CEAS4R7M50
	C667	ELECT. CAPACITOR	CEAS100M50

RESISTORS

Mark	No.	Description	Part No.
	R340, 341	CARBONFILM RESISTOR	RD1/6PM□□□J
	R351-391	CARBONFILM RESISTOR	RD1/6PM□□□J
	R393-398	CARBONFILM RESISTOR	RD1/6PM□□□J
	R451	CARBONFILM RESISTOR (*2)	RD1/2LF□□□J
	R452	CARBONFILM RESISTOR	RD1/2LF□□□J
	R453	CARBONFILM RESISTOR (*1)	RD1/6PM□□□J
	R454-457	CARBONFILM RESISTOR	RD1/6PM□□□J
	R459, 460	CARBONFILM RESISTOR	RD1/6PM□□□J
	R461	CARBONFILM RESISTOR	RD1/2LF□□□J
	R462-465	CARBONFILM RESISTOR	RD1/6PM□□□J
	R467-469	CARBONFILM RESISTOR	RD1/6PM□□□J
	R474	CARBONFILM RESISTOR (*1)	RD1/6PM□□□J
	R475	CARBONFILM RESISTOR	RD1/6PM□□□J
	R477	CARBONFILM RESISTOR	RD1/6PM□□□J
	R478, 479	CARBONFILM RESISTOR (*1)	RD1/6PM□□□J
	R651-659	CARBONFILM RESISTOR	RD1/6PM□□□J
	R661, 662	CARBONFILM RESISTOR (*2)	RD1/6PM□□□J
	VR651, 652	VR (*2)	VRTB6HS223
	VR653, 654	VR	VRTB6HS223

OTHERS

Mark	No.	Description	Part No.
	CN352		S12B-XH-A-1
	CN403		S7B-XH-A-1

MAIN UNIT

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC101	PB-EQ AMP IC	CXA1115BP
	IC251	DOLBY B/C IC	CXA1330S-P
	IC501	MCU	PD4381A
	IC510	FL STATIC DRIVER IC	LC7570
	IC554	IC	BA15218N
	IC701	OP-AMP IC	BA15218
	IC761	IC	BA15218N
	IC902	OP-AMP IC	BA15218
	IC903	DUAL-COMPARATOR IC	M5233L
⚠	IC1002	REGULATOR IC	NJM78M05FA
⚠	IC1003, 1004	REGULATOR IC	NJM7812FA
⚠	IC1005	REGULATOR IC	NJM79L05A
	IC1701	CMOS LOGIC IC	TC4050BP
	Q101-106	TRANSISTOR	DTC124ES
	Q108	DIGITAL TRANSISTOR	DTC114ES
	Q109	TRANSISTOR	DTC124ES
	Q151, 152	N-FET	2SK373
	Q153, 154	TRANSISTOR	2SC3311A
	Q155	DIGITAL TRANSISTOR	DTA114ES
	Q157	TRANSISTOR	DTC124ES
	Q161, 162	N-FET	2SK373
	Q163, 164	TRANSISTOR	2SC3311A

Mark	No.	Description	Part No.
	Q165	DIGITAL TRANSISTOR	DTA114ES
	Q167	TRANSISTOR	DTC124ES
	Q168	TRANSISTOR (*2)	2SC3311A
	Q171,172	N-FET (*2)	2SK373
	Q251,252	TRANSISTOR	DTC124ES
	Q255-257	TRANSISTOR	DTC124ES
	Q321-324	TRANSISTOR (*2)	DTC124ES
	Q331	DIGITAL TRANSISTOR (*1)	DTA114TS
	Q332	DIGITAL TRANSISTOR	DTA114TS
	Q503-507	TRANSISTOR	DTC124ES
	Q510	TRANSISTOR	2SA1309A
	Q551,552	DIGITAL TRANSISTOR	DTC114TS
	Q553	N-FET	2SK246
	Q701,702	TRANSISTOR	2SD2144S
	Q703,704	DIGITAL TRANSISTOR	DTC114TS
	Q705-708	TRANSISTOR	2SD2144S
	Q709,710	DIGITAL TRANSISTOR	DTC114TS
	Q741,742	TRANSISTOR	2SD2144S
	Q762	DIGITAL TRANSISTOR	DTA114TS
	Q764	TRANSISTOR	DTC124ES
	Q802	TRANSISTOR	2SA1309A
	Q803	TRANSISTOR	DTC124ES
	Q804	TRANSISTOR	2SB1238X
	Q805	TRANSISTOR	DTC124ES
	Q807	TRANSISTOR	2SD1858X
	Q852	TRANSISTOR	2SA1309A
	Q853	TRANSISTOR	DTC124ES
	Q854	TRANSISTOR	2SB1238X
	Q855	TRANSISTOR	DTC124ES
	Q857	TRANSISTOR	2SD1858X
	Q902,903	DIGITAL TRANSISTOR	DTC114TS
⚠	Q1001	TRANSISTOR	2SA1283
	Q1005	TRANSISTOR	2SA1309A
	Q1006,1007	TRANSISTOR	2SC3311A
	Q1010	TRANSISTOR	2SA1309A
	Q1101-1114	DIGITAL TRANSISTOR (*1)	DTC114TS
	Q1151-1164	DIGITAL TRANSISTOR	DTC114TS
	D151-156	DIODE	1SS254
	D161-166	DIODE	1SS254
	D167,168,651,922	DIODE (*2)	1SS254
	D501	ZENER DIODE	MTZJ9.1A
	D503-506	DIODE	1SS254
	D510	DIODE	1SS254
	D514,515	DIODE	1SS254
	D742	DIODE	1SS254
	D761	DIODE	1SS254
	D765	ZENER DIODE	MTZJ3.9B
	D766	DIODE	1SS254
	D774	DIODE	1SS254
	D801	DIODE	1SS252
	D802-811	DIODE	1SS254
	D812	DIODE	1SS252
	D813,814	DIODE	1SS254
	D901-903	DIODE	1SS254
	D910-913	DIODE	1SS254
	D921	DIODE	1SS254

Mark	No.	Description	Part No.
⚠	D1001	DIODE	1SR35-100AVL
⚠	D1002	ZENER DIODE	MTZJ24AA
	D1004	ZENER DIODE	MTZJ3.3B
⚠	D1006	DIODE	1SR35-100AVL
⚠	D1009-1011	DIODE	1SS254
⚠	D1012		S2VB20
	D1301-1304	DIODE	1SS254
	D1601-1603	DIODE	1SS254
	D1701-1705	DIODE	1SS254

COILS/TRANSFORMERS

Mark	No.	Description	Part No.
	L101,102	COIL	RTF1099
	F251,252	FILTER	RTF1203

RELAYS

Mark	No.	Description	Part No.
	RY101	RELAY (*2)	RSR1026

SWITCHES

Mark	No.	Description	Part No.
⚠	S1201	SWITCH	RSA-063

CAPACITORS

Mark	No.	Description	Part No.
	C101,102	AXIAL CAPACITOR	CKPUYB471K50
	C103,104	AXIAL CAPACITOR	CKPUYB561K50
	C105,106	CERAMIC CAPACITOR	CKPUYB102K50
	C107-110	ELECT. CAPACITOR	CEANL100M16
	C111,112	ELECT. CAPACITOR	CEANL101M10
	C113,114	AUDIO FILM CAPACITOR	CFTXA822J50
	C117,118	ELECT. CAPACITOR	CEAS4R7M50
	C121,122	AXIAL CAPACITOR	CKPUYB471K50
	C123,124	AXIAL CAPACITOR	CKPUYB391K50
	C126,127	CERAMIC CAPACITOR	CGCYF473Z50
	C133,134	AXIAL CAPACITOR	CKPUYB681K50
	C135-138	AXIAL CAPACITOR	CKPUYB101K50
	C139	CERAMIC CAPACITOR	CGCYF473Z50
	C141,142	ELECT. CAPACITOR	CEAS470M16
	C151,152	AXIAL CAPACITOR	CCPUSL100J50
	C161,162	AXIAL CAPACITOR	CCPUSL100J50
	C171,172	AXIAL CAPACITOR (*2)	CCPUSL100J50
	C251-254	ELECT. CAPACITOR	CEAS010M50
	C255,256	AUDIO FILM CAPACITOR	CFTXA472J50
	C259,260	ELECT. CAPACITOR	CEAS4R7M50
	C261-264	AUDIO FILM CAPACITOR	CFTXA222J50
	C265,266	ELECT. CAPACITOR	CEASR22M50
	C267,268	ELECT. CAPACITOR	CEASR33M50
	C269	ELECT. CAPACITOR	CEAS100M50
	C273,274	ELECT. CAPACITOR	CEASR33M50
	C275,276		CFTXA821J50
	C281-284	ELECT. CAPACITOR	CEAS100M50
	C285,286	ELECT. CAPACITOR	CEAS330M16
	C287,288	AUDIO FILM CAPACITOR	CFTXA392J50
	C291	ELECT. CAPACITOR	CEAS101M16
	C303,304	ELECT. CAPACITOR (*1)	CEASR33M50
	C321,322	ELECT. CAPACITOR	CEASR33M50
	C503	CERAMIC CAPACITOR	CGCYX104K25
	C504	CERAMIC CAPACITOR	CGCYX123K25
	C505	CERAMIC CAPACITOR	CGCYX223K25
	C509,510	CERAMIC CAPACITOR	CKCYF103Z50
	C513	ELECT. CAPACITOR	CEAS470M16
	C514,515	CERAMIC CAPACITOR	CKCYF103Z50

Mark	No.	Description	Part No.
	C551	CERAMIC CAPACITOR	CGCYX823K25
	C552	CERAMIC CAPACITOR	CGCYX223K25
	C553	CERAMIC CAPACITOR	CGCYX472K25
	C554	CERAMIC CAPACITOR	CGCYX103K25
	C555	ELECT. CAPACITOR	CEAS010M50
	C701, 702	AXIAL CAPACITOR	CKPUYB101K50
	C703, 704	ELECT. CAPACITOR	CEAS010M50
	C705	ELECT. CAPACITOR	CEAS470M16
	C706	CERAMIC CAPACITOR	CGCYF473Z50
	C707, 708	ELECT. CAPACITOR	CEAS100M50
	C711	ELECT. CAPACITOR	CEAS470M16
	C715, 716	ELECT. CAPACITOR	CEASR47M50
	C717, 718	AUDIO FILM CAPACITOR	CFTXA822J50
	C719, 720	AUDIO FILM CAPACITOR	CFTXA563J50
	C721, 722	AUDIO FILM CAPACITOR	CFTXA823J50
	C723, 724	AXIAL CAPACITOR	CKPUYB101K50
	C762	AXIAL CAPACITOR	CKPUYB101K50
	C763	ELECT. CAPACITOR	CEASR47M50
	C764	AXIAL CAPACITOR	CKPUYB271K50
	C765	ELECT. CAPACITOR	CEASR22M50
	C767, 768	CERAMIC CAPACITOR	CGCYX822K25
	C769	CERAMIC CAPACITOR	CGCYF473Z50
	C801	AXIAL CAPACITOR	CKPUYB681K50
	C851	AXIAL CAPACITOR	CKPUYB681K50
	C910	CERAMIC CAPACITOR	CKCYF103Z50
	C911	CERAMIC CAPACITOR	CGCYF473Z50
	C913	ELECT. CAPACITOR	CEAS331M6R3
	C914	ELECT. CAPACITOR	CEAS330M35
	C915, 916	ELECT. CAPACITOR	CEAS100M50
	C917, 918	ELECT. CAPACITOR	CEASR47M50
	C919	CERAMIC CAPACITOR	CGCYF473Z50
	C921	CERAMIC CAPACITOR	CGCYF473Z50
	C1001	ELECT. CAPACITOR	CEAS221M50
	C1004	ELECT. CAPACITOR	CEAS330M35
	C1007	ELECT. CAPACITOR	CEAS472M16
	C1008	CERAMIC CAPACITOR	CGCYF473Z50
	C1010	ELECT. CAPACITOR	CEAS102M10
	C1011	ELECT. CAPACITOR	CEAS472M25
	C1013	ELECT. CAPACITOR	CEAS331M16
	C1015	ELECT. CAPACITOR	CEAS331M16
	C1016	ELECT. CAPACITOR	CEAS100M50
	C1018	ELECT. CAPACITOR	CEAS220M50
	C1020-1023	CERAMIC CAPACITOR	CGCYF473Z50
	C1024	ELECT. CAPACITOR	CEAS470M16
	C1030	CERAMIC CAPACITOR	CGCYF473Z50
⚠	C1203	CAPACITOR (0.01/400)	RCG-009
	C1606	CERAMIC CAPACITOR	CKCYF103Z50
	C1607	CERAMIC CAPACITOR	CGCYF473Z50
	C1701	CERAMIC CAPACITOR	CGCYF473Z50

RESISTORS

Mark	No.	Description	Part No.
	R101-114	CARBONFILM RESISTOR	RD1/6PM□□□J
	R117-120	CARBONFILM RESISTOR	RD1/6PM□□□J
	R125, 126	CARBONFILM RESISTOR	RD1/6PM□□□J
	R135, 136	CARBONFILM RESISTOR	RD1/6PM□□□J
	R151-154	CARBONFILM RESISTOR	RD1/6PM□□□J
	R156	CARBONFILM RESISTOR	RD1/6PM□□□J
	R161-164	CARBONFILM RESISTOR	RD1/6PM□□□J
	R166	CARBONFILM RESISTOR	RD1/6PM□□□J
	R168	CARBONFILM RESISTOR (*2)	RD1/6PM□□□J
	R171, 172	CARBONFILM RESISTOR (*2)	RD1/6PM□□□J
	R255-258	CARBONFILM RESISTOR	RD1/6PM□□□J
	R260-266	CARBONFILM RESISTOR	RD1/6PM□□□J
	R276-278	CARBONFILM RESISTOR	RD1/6PM□□□J
	R299	CARBONFILM RESISTOR	RD1/6PM□□□J
	R307-314	CARBONFILM RESISTOR (*1)	RD1/6PM□□□J
	R321, 322		RCN1024
	R323-328	CARBONFILM RESISTOR	RD1/6PM□□□J
	R331	CARBONFILM RESISTOR (*1)	RD1/6PM□□□J
	R332	CARBONFILM RESISTOR	RD1/6PM□□□J
	R343, 344	CARBONFILM RESISTOR	RD1/6PM□□□J
	R501	RESISTOR ARRAY (22K)	RA4T□□□J
	R504-509	CARBONFILM RESISTOR	RD1/6PM□□□J
	R510	RESISTOR ARRAY (*1)	RA5T□□□J
	R510	RESISTOR ARRAY (*2)	RA9T□□□J
	R512	RESISTOR ARRAY (68K)	RA6T□□□J
	R514-517	CARBONFILM RESISTOR	RD1/6PM□□□J
	R518	RESISTOR ARRAY	RA11T□□□J
	R520	CARBONFILM RESISTOR	RD1/6PM□□□J
	R524-529	CARBONFILM RESISTOR	RD1/6PM□□□J
	R533	CARBONFILM RESISTOR (*2)	RD1/6PM□□□J
	R534	CARBONFILM RESISTOR	RD1/6PM□□□J
	R551-561	CARBONFILM RESISTOR	RD1/6PM□□□J
	R563-565	CARBONFILM RESISTOR	RD1/6PM□□□J
	R701-704	CARBONFILM RESISTOR	RD1/6PM□□□J
	R707-730	CARBONFILM RESISTOR	RD1/6PM□□□J
	R733-738	CARBONFILM RESISTOR	RD1/6PM□□□J
	R741-744	CARBONFILM RESISTOR	RD1/6PM□□□J
	R760-764	CARBONFILM RESISTOR	RD1/6PM□□□J
	R766-768	CARBONFILM RESISTOR	RD1/6PM□□□J
	R770-775	CARBONFILM RESISTOR	RD1/6PM□□□J
	R804		RCN1053
	R805	METALFILM RESISTOR	RN1/6PQ□□□□F
	R806	CARBONFILM RESISTOR	RD1/6PM□□□J
	R809, 810	CARBONFILM RESISTOR	RD1/6PM□□□J
	R816	CARBONFILM RESISTOR	RD1/6PM□□□J
	R818, 819	CARBONFILM RESISTOR	RD1/6PM□□□J
	R854		RCN1053
	R855	METALFILM RESISTOR	RN1/6PQ□□□□F
	R856	CARBONFILM RESISTOR	RD1/6PM□□□J
	R859-861	CARBONFILM RESISTOR	RD1/6PM□□□J
	R866	CARBONFILM RESISTOR	RD1/6PM□□□J
	R901	CARBONFILM RESISTOR	RD1/6PM□□□J
	R915-923	CARBONFILM RESISTOR	RD1/6PM□□□J
	R926, 927	CARBONFILM RESISTOR	RD1/6PM□□□J
	R941, 942	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1001	CARBONFILM RESISTOR	RD1/2LF□□□J
	R1003, 1004	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1007-1012	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1014-1019	CARBONFILM RESISTOR	RD1/6PM□□□J
⚠	R1020	FUSLIBLE RESISTOR	RFA1/4L□□□J
	R1101-1115	CARBONFILM RESISTOR(*1)	RD1/6PM□□□J

Mark	No.	Description	Part No.
	R1151-1165	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1611	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1701	RESISTOR ARRAY	RA5T□□□J
	R1702	LADDER RESISTOR	RCX1020
	R1703, 1704	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR101-104	VR	RCP1046
	VR301, 302	VR (*1)	RCP1046
	VR321, 322	VR	RCP1045
	VR323, 324	VR (*2)	RCP1045
	VR551-553	VR	RCP1046
	VR802	VR	RCP1090
	VR851	VR	RCP1045
	VR852	VR	RCP1090

OTHERS

	CN801	CONNECTOR(14P)	KPE14
	CN851	CONNECTOR(14P)	KPE14
	CN906	CONNECTOR	HLEM24S-1
	CN3512		12JQ-BT
	CN3522		12JQ-BT
	CN4022		7JQ-BT
	CN4032		7JQ-BT
	JA701	JACK	RKB-020
	JA902, 903	JACK	RKN1004
	JA1602	JACK	PKN1005
	X501	CERAMIC RESONATOR	VSS1014

HP, MIC UNIT (*1) HP UNIT (*2)

SEMICONDUCTORS

	IC1601	IC	BA15218N
	IC2001	IC (*1)	BA15218N
	Q1603, 1604	TRANSISTOR	2SD2144S

CAPACITORS

	C1601, 1602	ELECT. CAPACITOR	CEASR22M50
	C1603, 1604	ELECT. CAPACITOR	CEAS101M16
	C1605	ELECT. CAPACITOR	CEAS331M16
	C2001, 2002	AXIAL CAPACITOR (*1)	CKPUYB681K50
	C2003, 2004	ELECT. CAPACITOR (*1)	CEAS010M50
	C2005, 2006	ELECT. CAPACITOR (*1)	CEAS100M50
	C2007, 2008	AXIAL CAPACITOR (*1)	CKPUYB101K50
	C2009	ELECT. CAPACITOR (*1)	CEAS470M16
	C2011, 2012	ELECT. CAPACITOR (*1)	CEAS010M50
	C2017	CERAMIC CAPACITOR (*1)	CGCYF473Z50
	C2020	CERAMIC CAPACITOR	CGCYF473Z50

RESISTORS

	R1601-1606	CARBONFILM RESISTOR	RD1/6PM□□□J
	R1609	METAL OXIDE RESISTOR	RS2LMF□□□J
	R1612, 1613	CARBONFILM RESISTOR	RD1/6PM□□□J
	R2001-2012	CARBONFILM RESISTOR(*1)	RD1/6PM□□□J
	R2017, 2018	CARBONFILM RESISTOR(*1)	RD1/6PM□□□J
	R2019, 2020	CARBONFILM RESISTOR	RD1/6PM□□□J

OTHERS

	JA2001, 2002	JACK (*1)	RKN1003
	JA2003	JACK	RKN1002

Mark	No.	Description	Part No.

OPERATE SW(1) UNIT

SWITCHES

	S1301-1303	SWITCH	RSG1033
	S1305, 1306	SWITCH	RSG1033

OPERATE SW(2) UNIT

SWITCHES

	S1401-1403	SWITCH	RSG1033
	S1405, 1406	SWITCH	RSG1033

DISPLAY UNIT

SEMICONDUCTORS

	Q1501	DIGITAL TRANSISTOR	DTA114TS
	D1501-1518	DIODE	1SS254

SWITCHES

	S1501-1508	SWITCH	RSG1034
	S1510-1516	SWITCH	RSG1034
	S1517	SWITCH (*1)	RSG1034
	S1518	SWITCH	RSG1034
	S1520-1524	SWITCH	RSH1014

RESISTORS

	R1501	CARBONFILM RESISTOR	RD1/6PM□□□J
	R2015, 2016	CARBONFILM RESISTOR	RD1/6PM□□□J
	VR2002	VARIABLE RESISTOR	RCV1086

OTHERS

	CN907	CONNECTOR 24P	52492-2420
	V1501		RAW1105

TR SEC UNIT

There is no supply part in this unit.

8. ADJUSTMENTS

8.1 MECHANICAL ADJUSTMENT

8.1.1 Door Damping Check and Adjustment

Set the door spring of DECK 1 side to position (A) as shown in Fig. 8-1. Then, erect the front panel assembly vertically.
Open the doors of DECK 1 and DECK 2 at the same time. At this point, confirm that the difference between opening degree of both doors is within 15mm when one side of the door is opened completely. When this standard is not satisfied, change the door spring installation position of Deck 1 and perform the adjustment as follows:

- When the opening action of the door of DECK 1 is later than that of DECK 2: Change the door spring of DECK 2 from A to B.
- When the opening action of the door of DECK 1 is faster than that of DECK 2: Change the door spring of DECK 1 from A to B.

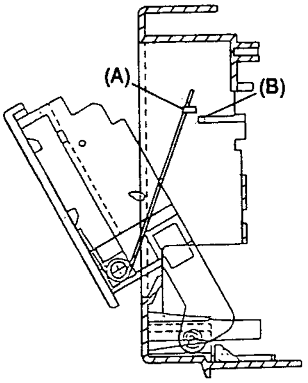


Fig. 8–1

8.1.2 Tape Speed

- Perform this adjustment in the test mode.
- TEST mode setting.

1. Set the REV MODE to " ⇄ ".
2. Short-circuit the JP901 and JP902 (TP14) for a moment. (Set into TEST mode.)
3. The speed becomes normal when the PLAY key is pressed, and double when the FF key is pressed.
4. To cancel the TEST mode, press the DECK I COUNTER RESET key or turn off the power.

1. Tape Speed Adjustment and Check

No.	Deck	Mode	Test tape	Adjusting points	Specifications/Ratings (playback frequency)	Remarks
1	I	Double speed PLAY	STD-301 (3 kHz)	check	6000 Hz ± 600 Hz	
2	II			VR851	Within ± 10 Hz against the measurement value of the step 1 (deck I	
3	I	Normal speed PLAY		VR802	3000 Hz ± 5 Hz	
4	II			VR852	Within ± 5 Hz against the measurement value of the step 3 (deck I	

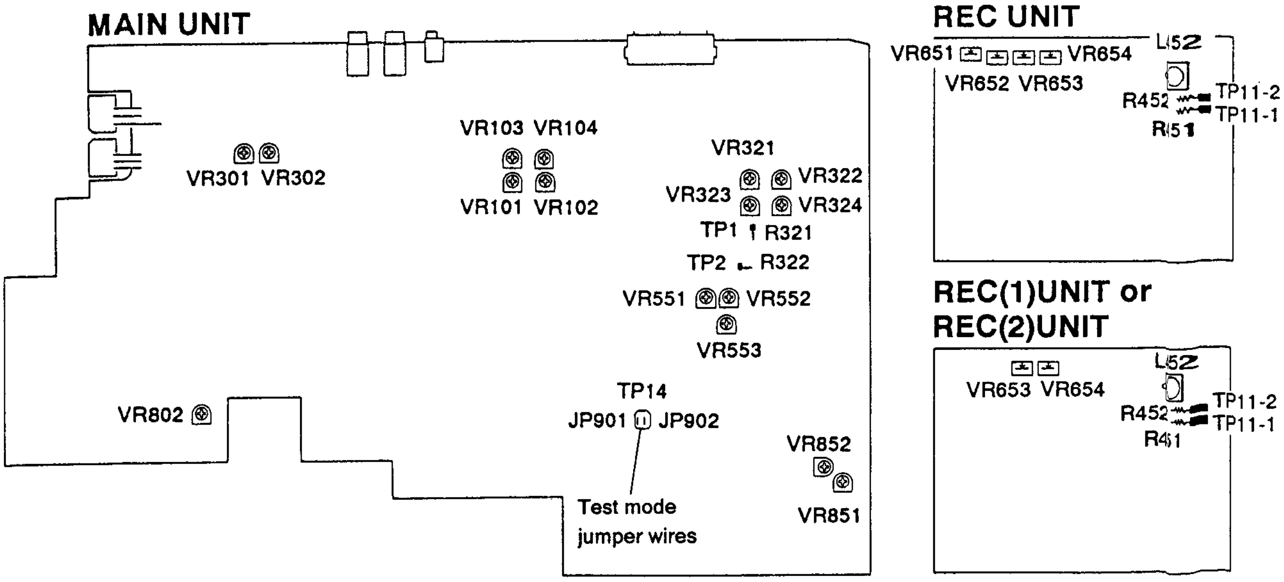

MAIN UNIT
VR301 VR302
VR103 VR104
VR101 VR102
VR321
VR323
VR322
VR324
TP1
R321
TP2
R322
VR551
VR552
VR553
VR802
TP14
JP901
JP902
Test mode jumper wires
VR852
VR851
REC UNIT
VR651
VR654
VR652 VR653
L452
R452
TP11-2
TP11-1
R451
REC(1)UNIT or REC(2)UNIT
VR653 VR654
L452
R452
TP11-2
TP11-1
R451

Fig. 8–2 Adjusting points

8.2 ELECTRICAL ADJUSTMENTS

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0 dBV=1 Vrms.
5. Connect a 50 kΩ (or between 47k to 52 kΩ) load resistance to the OUTPUT terminals.
6. Unless otherwise specified, the switches listed below are left in the positions indicated.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Test Tapes

STD-331E	: Playback adjustments (See Fig. 8-3)
STD-631	: NORMAL blank tape
STD-621	: CrO2 blank tape
STD-610	: METAL blank tape

* As the reference recording level is 250 nwb/m for STD-331E, the recording level will be higher by 4 dB for STD-331B (160 nwb/m). When adjusting, pay carefull attention to the type of tape used.

List of Adjustments

Playback sections

1. Head azimuth adjustment.
2. Playback level adjustment.

Recording sections

1. Bias oscillator adjustment.
2. Recording bias adjustment.
3. Recording level adjustment.
4. Level meter check.
5. SUPER AUTO BLE adjustment.

NOTE: This unit has an automatic tape selection feature.

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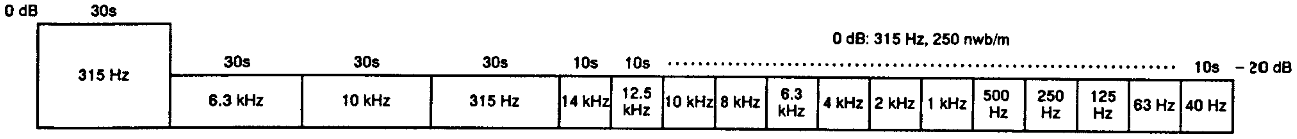
0 dB
30s
315 Hz
0 dB: 315 Hz, 250 nwb/m
30s
6.3 kHz
30s
10 kHz
30s
315 Hz
10s
14 kHz
10s
12.5 kHz
10 kHz
8 kHz
6.3 kHz
4 kHz
2 kHz
1 kHz
500 Hz
250 Hz
125 Hz
63 Hz
10s
40 Hz
-20 dB

Fig. 8-3 Constants of the test tape STD-331E

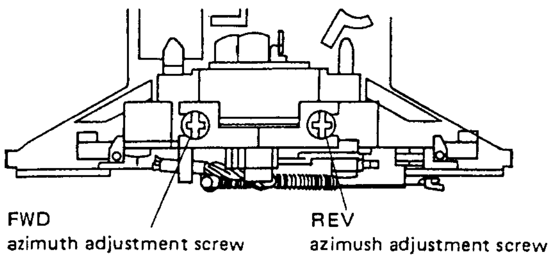
FWD
azimuth adjustment screw
REV
azimush adjustment screw

Fig. 8-4 Head azimuth adjustment

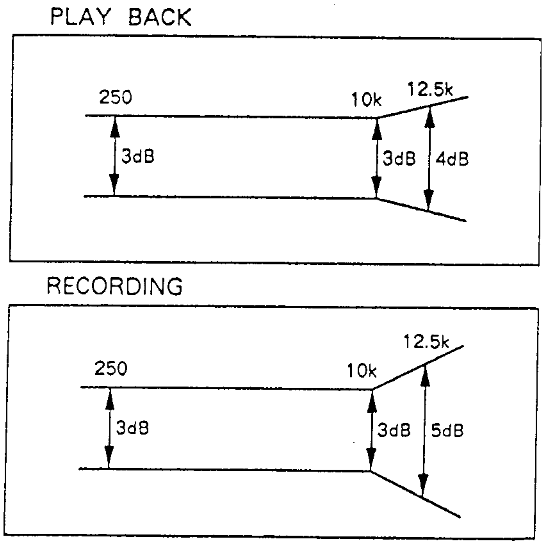

Fig. 8-5 Frequency response zone

PLAYBACK SECTION

1. Head Azimuth Adjustment

- Turn VR103, 104 (Deck I) or VR101, 102 (Deck II) to mechanical center positions.

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10 kHz/–20 dB section of STD–331E test tape.	Head azimuth adjustment screw. (See Fig. 8–4)	LINE OUT	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback Level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315 Hz/0 dB section of the STD–331E test tape.	Deck I	VR 103 (Lch) VR 104 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–6.7 dBV	
			Deck II	VR 101 (Lch) VR 102 (Rch)			

RECORDING SECTION

1. Bias Oscillator Adjustment

NOTE: • Adjust CT-W701R with DECK II and check it with DECK I. If the results are unsatisfactory after checking DECK I, adjust DECK II so that the adjusting value becomes the lower limit. The value is satisfactory if it is 105 kHz $\pm^{4}_{7}$ kHz.

• The specified value for the adjustments of CT-W801R, CT-W851R is 105 kHz ± 0.3 kHz. If this specification cannot be obtained, values within 105 kHz $\pm^{4}_{0.3}$ kHz are also satisfactory.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Load the STD–610 test tape with no input signal.	Deck I	L 452 *	TP. 11 – 1	105 kHz $\pm^{4}_{7}$ kHz	CT-W701R
					TP. 11(DECK I SIDE REC UNIT)	105 kHz ± 0.3kHz	CT-W801R, W851R
			Deck II	L 452 *	TP. 11 – 2		CT-W701R
					TP. 11(DECK II SIDE REC UNIT)		CT-W801R, W851R

* For CT-W801R and CT-W851R, adjust L452 in the REC (1) UNIT of DECK I when adjusting this deck, and adjust L452 in the REC (2) UNIT of DECK II when adjusting this deck.

2. Recording Bias Adjustment

- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC	Record the 315 Hz and 6.3 kHz signals at –26 dBV input level and playback. (STD-631)	Deck I	VR651 (Lch) * 1 VR653 (Lch) * 2	LINE OUT	Repeatedly record, playback and adjust so that the plyaback level of 6.3 kHz signal becomes 0 dB ± 0.5 dB when compared with the 315 Hz signal.	
				VR652 (Rch) * 1 VR654 (Rch) * 2			
			Deck II	VR653 (Lch) VR654 (Rch)			

* 1: CT-W701R only
* 2: CT-W801R, W851R only; Adjust VR653, VR654 of DECK I with the REC (1) UNIT of DECK I, and adjust those of DECK II with the REC (2) UNIT of DECK II

3. Recording Level Adjustment

No.	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/0 dBV signal to the line input terminals, load the STD-631 test tape.	REC level control volume		TP. 1 (Lch) TP. 2 (Rch)	-11.2 dBV	
2.	STOP	Set the DOLBY NR switch to the ON position. (DOLBY B)					
3.	REC/ PLAY	Record the above signal onto the STD-631 test tape, and playback.	Deck I	VR321 (Lch) *1 VR301 (Lch) *2	TP. 1 (Lch) TP. 2 (Rch)	Repeatedly record, playback and adjust so that the playback signal level becomes − 11.2 dBV.	
				VR322 (Rch) *1 VR302 (Rch) *2			
			Deck II	VR323 (Lch) *1 VR321 (Lch) *2			
				VR324 (Rch) *1 VR322 (Rch) *2			
4.	REC/ PLAY	Record the above signal onto the STD-621 test tape, and playback.	Check			-11.2 dBV ± 1.5dB	
5.	REC/ PLAY	Record the above signal onto the STD-610 test tape, and playback.					

*1: CT-W701R only
*2: CT-W801R, W851R only

4. Level Meter Check

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315 Hz/-10 dBV (316 mV) signal to the Line Input terminals.	REC level control volume	TP. 1 (Lch) TP. 2 (Rch)	Check that the level meters "0 dB" light up within -7.2 dBV ± 2 dB of the signal output level.	

5. SUPER AUTO BLE Adjustment

- BLE adjustment should be performed after all other adjustments are completed.
- This adjustment should be performed in the test mode.
- Entering the test mode.
  For details of how to enter the test mode, refer to the "Mechanical Adjustment" section (Page 31).

No.	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	–	Set to test mode.	–	–	–	
2.		Press the NORMAL SPEED key on the front panel.	Level meter	VR551	Adjust so that − 1 dB on the level meter turn on and off.	400 Hz adjustment
3.		Press the HIGH SPEED key on the front panel.		VR553		10 kHz adjustment
4.		Press the BLE key (DECK II SIDE) on the front panel.		VR552		3 kHz adjustment

Reference: The output of LINE OUT after completing the adjustments for 400 Hz, 10 kHz, 3 kHz becomes − 28 dBV ± 1dB.

8. REGLAGES

8.1 REGLAGE MÉCANIQUE

8.1.1 Contrôle et Réglage de l'Amortisseur de Trappe

Placer le ressort de trappe du côté de la platine 1 sur la position (A) comme indiqué dans la Fig. 8-1. Redresser ensuite l'ensemble de panneau avant verticalement.

Ouvrir les trappes de la platine 1 et de la platine 2 en même temps. A ce point, s'assurer que la différence entre le degré d'ouverture des deux trappes est de moins de 15mm lorsqu'un côte de la trappe est complètement ouvert. Lorsque cette valeur est différente de la valeur standard mentionnée, changer la position de mise en place du ressort de trappe de la platine 1 et effectuer un réglage comme suit:

- Lorsque l'action d'ouverture de la trappe de la platine 1 se fait plus lentement que celle de la platine 2: Changer le ressort de la trappe de la platine 2 de A à B.
- Lorsque l'action d'ouverture de la trappe de la platine 1 se fait plus rapidement que celle de la platine 2: Changer le ressort de la trappe de la platine 1 de A à B.

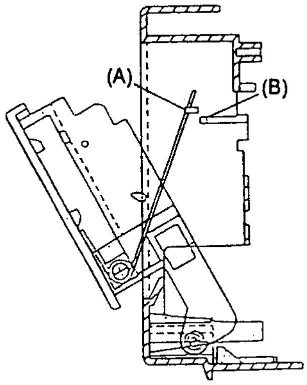

Fig. 8–1

8.1.2 Vitesse de défilement de la bande

- Régler au mode TEST.
- Réglage du mode TEST.

1. Régler le sélecteur REV MODE à "⇄".
2. Court-circuiter JP901 et JP902 (TP14) un moment. (Régler au mode TEST.)
3. La vitesse devient normale à la pression de la touche PLAY, et double à la pression de la touche FF.
4. appuyer sur la touche DECK I COUNTER RESET ou mettre hors tension pour annuler le mode TEST.

1. Réglage et contrôle de la vitesse de défilement de la bande

No.	Platine	Mode	Bande testée	Points de réglage	Spécifications/valeurs nominales (fréquence de lecture)	Remarques
1	I	PLAY double vitesse	STD-301 (3 kHz)	contrôl	6000 Hz ± 600 Hz	
2	II			VR851	Moins de ± 10 Hz par rapport à la valeur mesurée à l'étape 1 (platineI)	
3	I	PLAY vitesse normale		VR802	3000 Hz ± 5 Hz	
4	II			VR852	Moins de ± 5 Hz par rapport à la valeur mesurée à l'étape 3 (platine I	

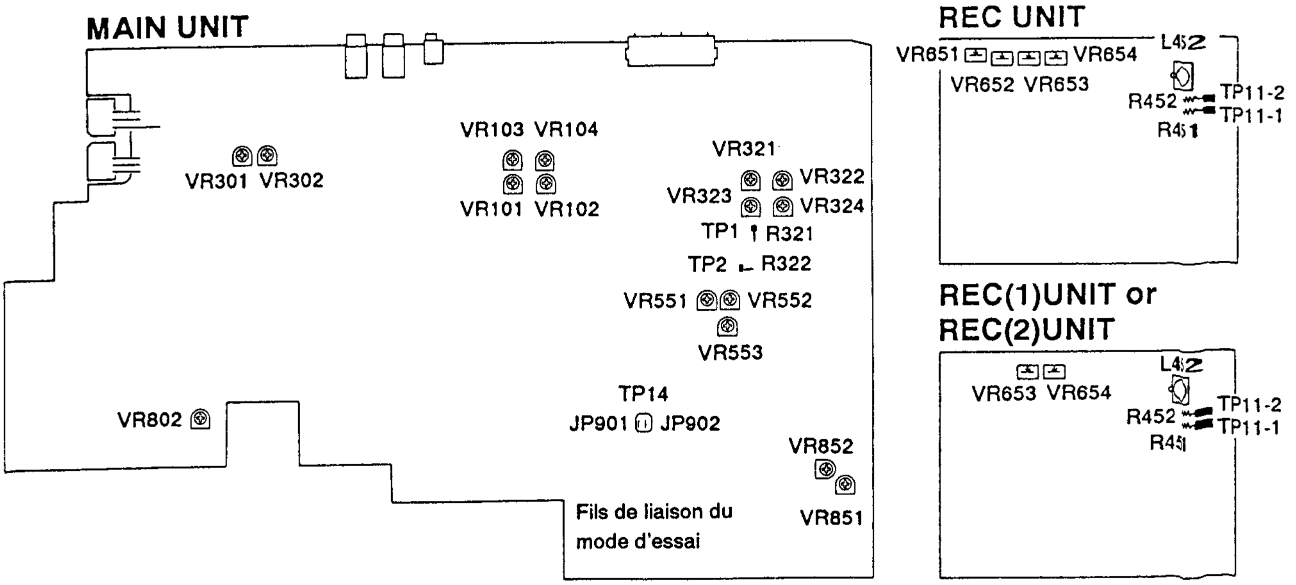
MAIN UNIT
VR301 VR302
VR103 VR104
VR101 VR102
VR321
VR323
VR322
VR324
TP1
R321
TP2
R322
VR551
VR552
VR553
VR802
TP14
JP901
JP902
VR852
VR851
Fils de liaison du mode d'essai
REC UNIT
VR651
VR654
VR652 VR653
L452
R452
TP11-2
TP11-1
R451
REC(1)UNIT or REC(2)UNIT
VR653 VR654
L452
R452
TP11-2
TP11-1
R451

Fig. 8–2 Points réglage

8.2 REGLAGES ELECTRIQUES

Conditions de réglage

1. Les réglages mécaniques doivent tout d'abord être terminés.
2. Les têtes doivent être nettoyées et démagnétisées.
3. Mettre la platine sous tension et la laisser chauffer pendant au moins quelques minutes avant de commencer les réglages électriques.
4. Le signal de référence est de 0 dBV=1 Vrms.
5. Connecter une résistance de charge de 50 kΩ (tolérance 47k à 52 kΩ) aux bornes de sortie (OUTPUT).
6. Sauf indication contraire, les commutateurs ci–dessous doivent être laissés sur les positions indiquées.
   DOLBY NR : OFF
   Sélecteur de bande (TAPE SELECTOR) : NORM

Bandes d'essai

STD–331E	: Réglages de la lecture (Voir fig. 8–3)
STD–631	: Bande vierge de type normal
STD–621	: Bande vierge de type chrome
STD–610	: Bande vierge de type métal

* Le niveau d'enregistrement de référence étant de 250 nwb/m pour le STD–331E, le niveau d'enregistrement sera supérieur de 4 dB pour le STD–331B (160 nwb/m). Pour le réglage, tenir compte du type de bande utilisé.

Liste des réglages

Sections de lecture

1. Réglage de l'azimut de la tête.
2. Réglage du niveau de lecture.

Sections d'enregistrement

1. Réglage de l'oscillateur de polarisation.
2. Réglage de la polarisation d'enregistrement.
3. Réglage du niveau d'enregistrement.
4. Vérification de l'indicateur de niveau.
5. Réglage de SUPER AUTO BLE.

REMARQUE:
Cette unité est dotée d'une sélection automatique de bande.

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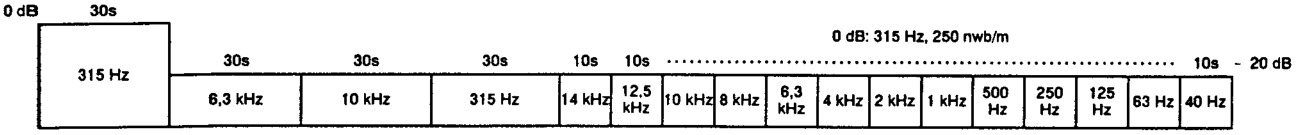
0 dB
30s
315 Hz
0 dB: 315 Hz, 250 nwb/m
30s
30s
30s
10s
10s
10s
- 20 dB
6,3 kHz
10 kHz
315 Hz
14 kHz
12,5 kHz
10 kHz
8 kHz
6,3 kHz
4 kHz
2 kHz
1 kHz
500 Hz
250 Hz
125 Hz
63 Hz
40 Hz

Fig. 8–3 Constantes de la bande d'essai STD–331E

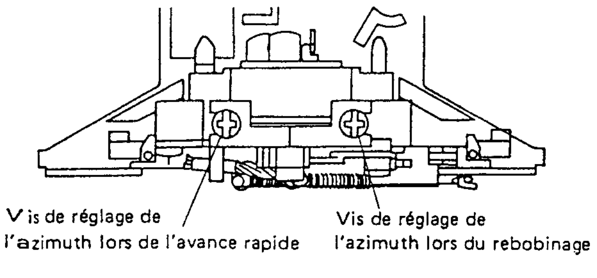
V is de réglage de l'azimuth lors de l'avance rapide
Vis de réglage de l'azimuth lors du rebobinage

Fig. 8–4 Réglage de l'azimut de la tête

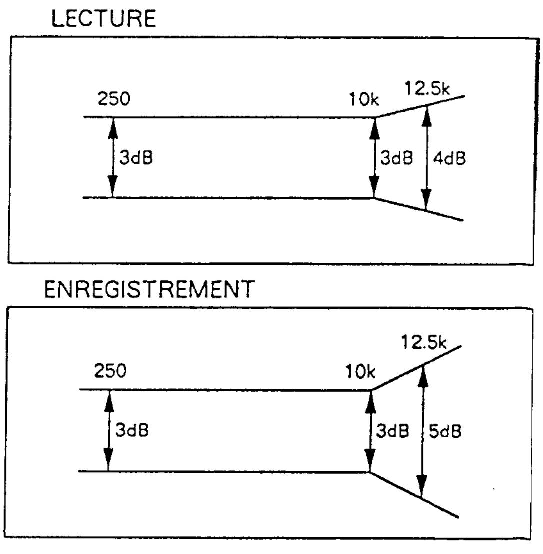

Fig. 8–5 Zone de réponse en fréquence

SECTION DE LECTURE

1. Réglage de l'azimut de la tête

- Tourner VR 103, 104 (Platine I) ou VR 101, 102 (Platine II) sur leur position centrale mécanique.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 10 kHz/–20 dB de la bande d'essai STD–331E.	Vis de réglage de l'azimut de la tête. (Voir fig. 8–4)	Sortie de ligne (LINE OUT)	Niveau du signal de reproduction maximum.	
2.	STOP	Verrouiller la vis avec le verrouillage de vis après avoir terminé le réglage.				

2. Réglage du niveau de lecture

- Ce réglage détermine le niveau DOLBY NR et il doit être effectué très soigneusement.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	PLAY	Reproduire la section 315 Hz/0 dB de la bande d'essai STD–331E.	Platine I	VR103 (can. G) VR104 (can. D)	TP. 1 (can. G) TP. 2 (can. D)	–6.7 dBV	
			Platine II	VR101 (can. G) VR102 (can. D)			

SECTION D'ENREGISTREMENT

1. Réglage de l'oscillateur de polarisation

NOTE:
- Régler CT-W701R avec DECK II et le contrôler avec DECK I. Si le résultat n'est pas satisfaisant après le contrôle de DECK I, régler DECK II de sorte que la valeur réglée soit celle de la limite inférieure. Une valeur entre 105 kHz $\pm^{4}_{7}$ kHz est satisfaisante.
- La valeur de réglage spécifiée pour les CT-W801R et CT-W851R est 105 kHz ± 0.3 kHz. Si elle ne peut pas être obtenue, des valeurs de 105 kHz $\pm^{4}_{0.3}$ kHz sont aussi acceptables.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	REC	Charger la bande d'essai STD–610 et n'introduire aucun signal.	Platine I	L 452*	TP. 11 – 1	105 kHz $\pm^{4}_{7}$ kHz	CT-W701R
					TP. 11 (DECK I SIDE REC UNIT)	105 kHz ± 0.3 kHz	CT-W801R, W851R
			Platine II	L 452*	TP. 11 – 2		CT-W701R
					TP. 11 (DECK II SIDE REC UNIT)		CT-W801R, W851R

* Pour CT-W801R et CT-W851R, régler L452 dans le REC (1) UNIT de DECK I en réglant cette platine, et régler L452 dans REC (2) UNIT de DECK II en réglant cette platine.

2. Réglage de la polarisation d'enregistrement

- Après le réglage, des précautions doivent être prises pour éviter une sous–polarisation en vérifiant le taux de distorsion.

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	STOP	Enregistrer les signaux 315 Hz et 6,3 kHz à un niveau d'entrée de –26 dBV et les reproduire. (STD – 631)	Platine I	VR651 (can. G) *1 VR653 (can. G) *2	Sortie de ligne (LINE OUT)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau de lecture du signal 6,3 kHz devienne 0 dB ± 0.5 dB lorsqu'il est comparé avec le signal 315 Hz.	
				VR652 (can. D) *1 VR654 (can. D) *2			
			Platine II	VR653 (can. G) VR654 (can. D)			

*1: CT-W701R seulement
*2: CT-W801R, W851R seulement: Régler VR653, VR654 de DECK I avec REC (1) UNIT de DECK I, puis ceux de DECK II avec REC (2) UNIT de DECK II.

3. Réglage du niveau d'enregistrement

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage		Points de mesure	Valeur de réglage	Remarques
1.	REC PAUSE	Appliquer un signal de 315 Hz/0 dBV aux bornes d'entrée de ligne, charger la bande d'essai STD-631.	Volume de la commande de niveau d'enregistrement.		TP. 1 (can. G) TP. 2 (can. D)	-11.2 dBV	
2.	STOP	Régler le commutateur DOLBY NR sur la position ON. (DOLBY B)					
3.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-631 et le reproduire.	Platine I	VR321 (can. G) *1 VR301 (can. G) *2	TP. 1 (can. G) TP. 2 (can. D)	Enregistrer, reproduire et régler de manière répétée de sorte que le niveau du signal devienne – 11.2 dBV.	
				VR322 (can. D) *1 VR302 (can. D) *2			
			Platine II	VR323 (can. G) *1 VR321 (can. G) *2			
				VR324 (can. D) *1 VR322 (can. D) *2			
4.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-621 et le reproduire.	Vérifier			-11.2 dBV ± 1.5 dB	
5.	REC/ PLAY	Enregistrer le signal cidessus sur la bande d'essai STD-610 et le reproduire.					

*1: CT-W701R seulement
*2: CT-W801R, W851R seulement

4. Vérification de l'indicateur de niveau

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	REC PAUSE	Appliquer un signal de 315 Hz/-10 dBV (316 mV) aux bornes d'entrée de ligne.	Volume de la commande de niveau d'enregistrement	TP. 1 (can. G) TP. 2 (can. D)	Vérifier que les indicateurs de niveau "0 dB" s'allument dans la limite de -7.2 dBV ± 2 dB du niveau de sortie du signal.	

5. Réglage de SUPER AUTO BLE

- Leréglage BLE doit être effectué après que tous les autres réglages sont complétés.
- Ce réglage doit être effectué dans le mode d'essai.
- Passage au mode d'essai.
  Pour les détails du passage en mode d'essai, voir la section "Réglages mécaniques" (Page 36).

No.	Mode	Signal d'entrée et bande d'essai	Points de réglage	Points de mesure	Valeur de réglage	Remarques
1.	–	Régler dans le mode d'essai.	–	–	–	
2.		Appuyer sur la touche NORMAL SPEED du panneau avant.	L'indicateur de niveau	VR551	Régler de sorte que – 1 dB sur l'indicateur de niveau s'allume et s'éteigne.	Réglage 400 Hz
3.		Appuyer sur la touche HIGH SPEED du panneau avant.		VR553		Réglage 10 kHz
4.		Appuyer sur la touche BLE(DECK II SIDE) du panneau avant.		VR552		Réglage 3 kHz

Référence: Après l'achèvement des réglages pour 400 Hz, 10 kHz et 3 kHz, la sortie de LINE OUT devient – 26 dBV ± 1 dB.

8. AJUSTES

8.1 AJUSTE MECANICO

8.1.1 Comprobación y ajuste de la amortiguación de la puerta

Ajuste el resorte de la puerta del DECK 1 en la posición (A) como se muestra en la Fig. 8-1. Luego, levante el conjunto del panel frontal en forma vertical. Abra las puertas de los DECK 1 y DECK 2 al mismo tiempo.

Entonces, confirme que la diferencia entre el grado de abertura de ambas puertas sea de 15mm como máximo cuando se abre por completo un lado de la puerta. Cuando no se satisfacen estas medidas, cambie la posición de instalación del resorte de la puerta del DECK 1 y efectúe el ajuste del modo siguiente:

- Cuando la acción de abrir la puerta del DECK 1 es más retardada que la del DECK 2: Cambie el resorte de la puerta del DECK 2 de A a B.
- Cuando la acción de abrir la puerta del DECK 1 es más rápida que la del DECK 2: Cambie el resorte de la puerta del DECK 1 de A a B.

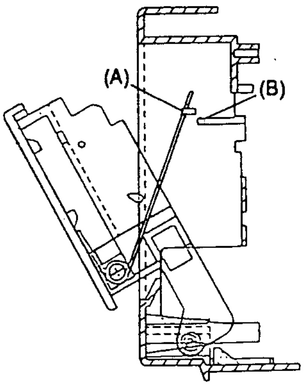

Figura. 8–1

8.1.2 Velocidad de la Cinta

- Realice este ajuste en el modo de prueba.
- Ajuste del modo TEST.

1. Ajuste el REV MODE en "⇄".
2. Cortocircuite JP901 y JP902 (TP14) durante un momento.(Ajuste en el modo TEST.)
3. La velocidad es normal cuando se oprime la tecla PLAY, y doble cuando se oprime la tecla FF.
4. Para cancelar el modo TEST, oprima la tecla DECK I COUNTER RESET o desconecte la alimentación.

1. Ajuste y Verificación de la Velocidad de la Cinta

N.º	Unidad	Modo	Cinta de prueba	Puntos de ajuste	Especificaciones/Valores nominales (frecuencia de reproducción)	Observaciones
1	I	PLAY a velocidad doble	STD-301 (3 kHz)	Verificar	6000 Hz ± 600 Hz	
2	II			VR851	Dentro de ± 10 Hz contra el valor de medición del paso 1 (unidad I)	
3	I	PLAY a velocidad normal		VR802	3000 Hz ± 5 Hz	
4	II			VR852	Dentro de ± 5 Hz contra el valor de medición del paso 3 (unidad I)	

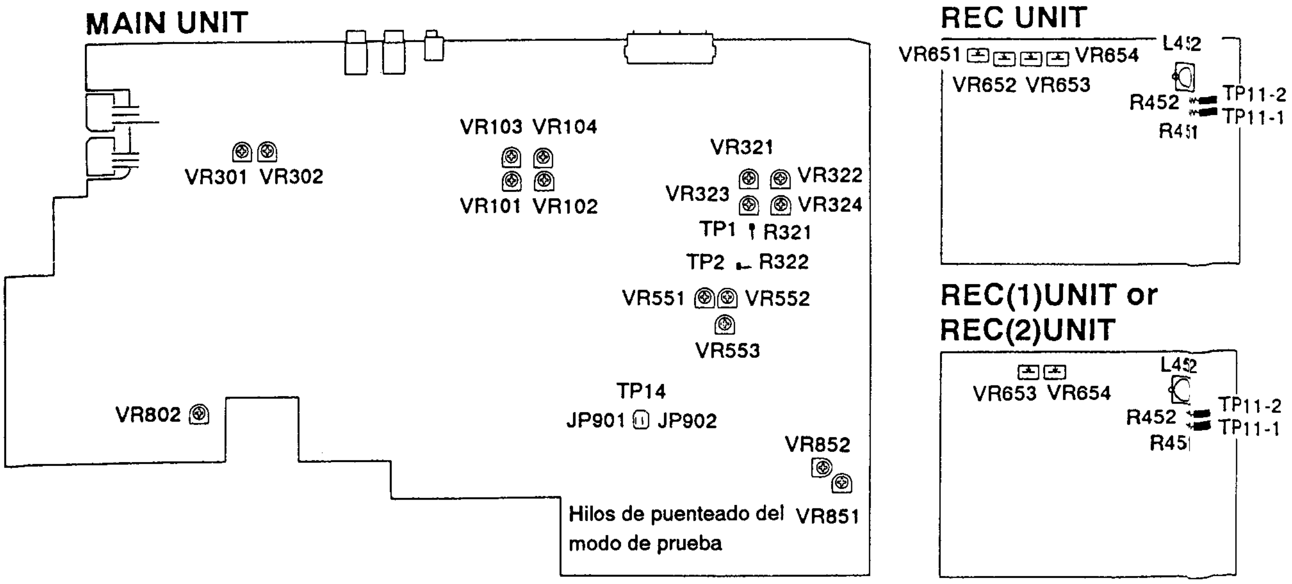
MAIN UNIT
VR301 VR302
VR103 VR104
VR101 VR102
VR321
VR323
VR322
VR324
TP1
R321
TP2
R322
VR551 VR552
VR553
VR802
TP14
JP901 JP902
VR852
VR851
Hilos de puenteado del modo de prueba
REC UNIT
VR651 VR654
VR652 VR653
L452
R452
R451
TP11-2
TP11-1
REC(1)UNIT or REC(2)UNIT
VR653 VR654
L452
R452
R451
TP11-2
TP11-1

Figura. 8–2 Puntos de ajuste

8.2 AJUSTES ELÉCTRICOS

Condiciones de ajuste

1. Los ajustes mecánicos deben haberse completado primero.
2. La cabeza debe estar limpia y desmagnetizada.
3. Encienda la alimentación para permitir que la platina se caliente durante unos pocos minutos por lo menos antes de realizar cualquier ajuste eléctrico.
4. La señal de referencia es de 0 dBV=1 Vrms.
5. Conecte una resistencia de 50 kΩ (o entre 47k y 52 kΩ) en los terminales OUTPUT.
6. A menos que se especifique lo contrario, los conmutadores indicados más abajo deben dejarse en las posiciones indicadas.
   DOLBY NR : OFF
   TAPE SELECTOR : NORM

Cintas de prueba

STD–331E : Ajustes de reproducción (Consulte la figura 8–3)
STD–631 : Cinta virgen NORMAL
STD–621 : Cinta virgen de CrO2
STD–610 : Cinta virgen de METAL

* Como el nivel de grabación de referencia es igual a 250 nwb/m para el STD–331E, el nivel de grabación será 4 dB mayor para el STD–331B (160 nwb/m). Al realizer el ajuste, preste suma atención al tipo de cintá que se está utilizando.

Lista de ajustes

Secciones de reproducción

1. Ajuste de azimut de la cabeza
2. Ajuste del nivel de reproducción

Secciones de grabación

1. Ajuste del oscillador de polarización
2. Ajuste de la polarización de grabación
3. Ajuste del nivel de grabación
4. Verificación del medidor de nivel
5. Ajuste SUPER AUTO BLE

NOTA:
Esta unidad posee una función de selección automática de cinta.

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DOLBY, el simbolo de la D doble DD y HX PRO son marcas de Dolby Laboratories Licensing Corporation.

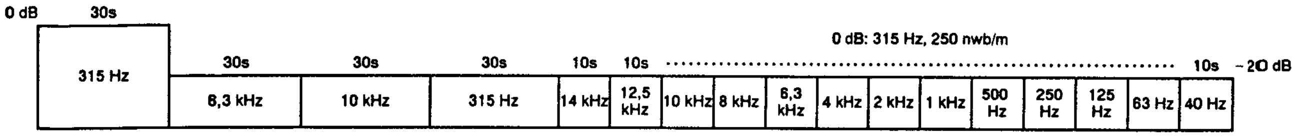

0 dB
30s
315 Hz
0 dB: 315 Hz, 250 nwb/m
30s
30s
30s
10s
10s
10s
-20 dB
6,3 kHz
10 kHz
315 Hz
14 kHz
12,5 kHz
10 kHz
8 kHz
6,3 kHz
4 kHz
2 kHz
1 kHz
500 Hz
250 Hz
125 Hz
63 Hz
40 Hz

Figura 8–3 Constantes de la cinta de prueba STD–331E

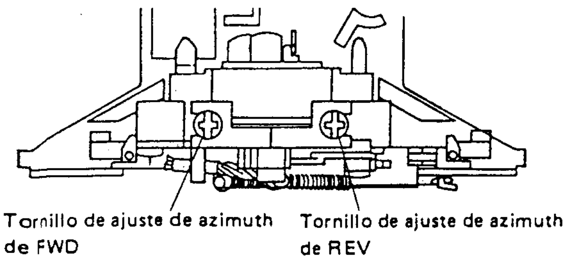
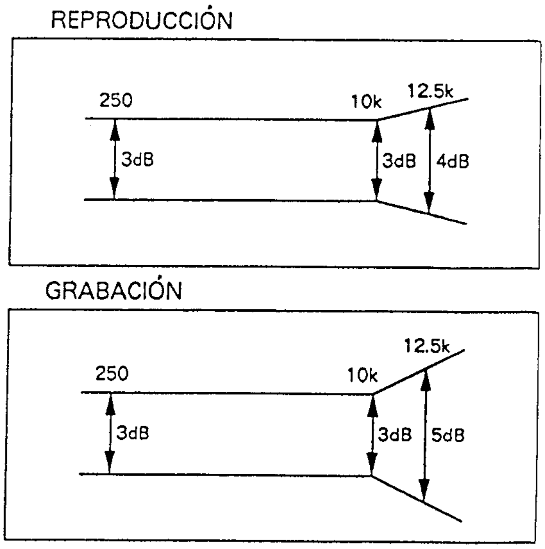

Tornillo de ajuste de azimuth de FWD
Tornillo de ajuste de azimuth de REV

Figura 8–4 Ajuste de azimut de la cabeza


REPRODUCCIÓN

GRABACIÓN

Figura 8–5 Zona de respuesta de frecuencia

SECCIÓN DE REPRODUCCIÓN

1. Ajuste del azimut de la cabeza

- Poner VR103, 104 (platina I) o VR101, 102 (platina II) en las posiciones del centro mecánico.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Reproduzca la sección de 10 kHz/–20 dB de la cinta de prueba STD–331E.	Tornillo de ajuste del azimut de la cabeza. (Vea la figura 8–4)	LINE OUT	Nivel máximo de la señal de reproducción.	
2.	STOP	Bloquee el tornillo con su cierre una vez finalizado el ajuste.				

2. Ajuste del nivel de reproducción

- Este ajuste determina el nivel DOLBY NR y debe realizarse con mucho cuidado.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	PLAY	Produzca la parte de 315 Hz/0 dB de la cinta de prueba STD–331E.	Platina I	VR103 (Lch) VR104 (Rch)	TP. 1 (Lch) TP. 2 (Rch)	–6.7 dBV	
			Platina II	VR101 (Lch) VR102 (Rch)			

SECCIÓN DE GRABACIÓN

1. Ajuste del oscillador de polarización

Nota:
- Ajuste el CT-W701R con el DECK II y verifíquelo con el DECK I. Si desqués de verificar el DECK I los resultados no son satisfactorios, ajuste el DECK II en forma tal que el valor de ajuste sea igual al límite inferior. El valor es satisfactorio si el igual a 105 kHz $\pm^{4}_{7}$ kHz.
- El valor especificado para los ajustes de CT-W801R, CT-W851R es 105 kHz ± 0.3 kHz.Si no fuera posible obtener esta especificación, valores comprendidos entre 105 kHz $\pm^{4}_{0.3}$ kHz son también satisfactorios.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	REC	Introduzca la cinta de prueba STD–610 sin señal de entrada.	Platina I	L 452*	TP. 11 – 1	105 kHz $\pm^{4}_{7}$ kHz	CT-W701R
					TP. 11(DECK I SIDE REC UNIT)	105 kHz ± 0.3 kHz	CT-W801R, W851R
			Platina II	L 452*	TP. 11 – 2		CT-W701R
					TP. 11(DECK II SIDE REC UNIT)		CT-W801R, W851R

Para el CT-W801R y el CT-W851R, ajuste L452 en la REC (1) UNIT del DECK I cuando ajuste este magnetófono, y ajuste L452 en la REC (2)UNIT del DECK II cuando ajuste este magnetófono.

2. Ajuste de polarización de grabación

- Una vez finalizado el ajuste, compruebe el porcentaje de distorsión para no obtener subpolarización.

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	REC	Grabe la señal de 315 Hz y 6,3 kHz a un nivel de entrada de –26 dBV y reprodúzcala. (STD – 631)	Platina I	VR651 (Lch) *1 VR653 (Lch) *2	LINE OUT	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción de 6,3 kHz sea de 0 dB ± 0.5 dB cuando se compare con la señal de 315 Hz.	
				VR652 (Rch) *1 VR654 (Rch) *2			
			Platina II	VR653 (Lch) VR654 (Lch)			

*1: CT-W701R solamente

*2: CT-W801R, W851R solamente: Ajuste VR653, VR654 del DECK I con la REC (1) UNIT del DECK I, y ajuste los del DECK II con la REC (2) UNIT del DECK II.

3. Ajuste del nivel de grabación

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste		Punto de medición	Valor de ajuste	Comentarios
1.	REC PAUSE	Aplique una señal de 315 Hz/0 dBV a los terminales de entrada de línea e introduzca la cinta de prueba STD–631.	Control de nivel de grabación.		TP. 1 (Lch) TP. 2 (Rch)	–11.2 dBV	
2.	STOP	Ponga el conmutador DOLBY NR en la posición ON. (DOLBY B)					
3.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD–631 y reprodúzcala.	Platina I	VR321 (Lch) *1 VR301 (Lch) *2	TP. 1 (Lch) TP. 2 (Rch)	Grabe, reproduzca y ajuste repetidamente para que el nivel de la señal de reproducción sea de – 11.2 dBV.	
				VR322 (Rch) *1 VR302 (Rch) *2			
			Platina II	VR323 (Lch) *1 VR321 (Lch) *2			
				VR324 (Rch) *1 VR322 (Rch) *2			
4.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD–621 y reprodúzcala.	Verifique			–11.2 dBV ± 1.5dB	
5.	REC/ PLAY	Grabe la señal de arriba en la cinta de prueba STD–610 y reprodúzcala.					

*1: CT-W701R solamente
*2: CT-W801R, W851R solamente

4. Verificación del medidor de nivel

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	REC PAUSE	Aplique una señal de 315 Hz/–10 dBV (316 mV) a los terminales de entrada de línea.	Control de nivel de grabación	TP. 1 (Lch) TP. 2 (Rch)	Verifique si se encienden los medidores de nivel "0 dB" cuando el nivel de salida de la señal sea –7.2 dBV ± 2 dB.	

5. Ajuste SUPER AUTO BLE

- El ajuste BLE debe efectuarse después de haber terminado todos los otros ajustes.
- Este ajuste debe efectuarse en el modo de prueba.
- Cómo establecer el modo de prueba.
  Con respecto a los detalles de cómo se entra en el modo de prueba, consulte la sección "Ajuste Mecánico" (Página41).

N.º	Modo	Señal de entrada y cinta de prueba	Punto de ajuste	Punto de medición	Valor de ajuste	Comentarios
1.	–	Establezca el modo de prueba.	–	–	–	
2.		Pulse la tecla NORMAL SPEED del panel delantero.	En medidor de nivel	VR551	Ajuste de modo tal que – 1dB se active y desactive en el medidor de nivel.	Ajuste de 400 Hz
3.		Pulse la tecla HIGH SPEED del panel delantero.		VR553		Ajuste de 10 kHz
4.		Pulse la tecla BLE (DECK II SIDE)del panel delantero.		VR552		Ajuste de 3 kHz

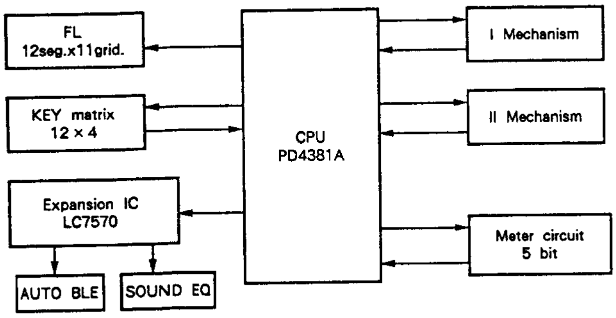
Referencia: Después de completar los ajustes para 400 Hz, 10 kHz y 3 kHz, la salida de LINE OUT es igual a – 26 dBV ± 1 dB.

9. IC DESCRIPTIONS

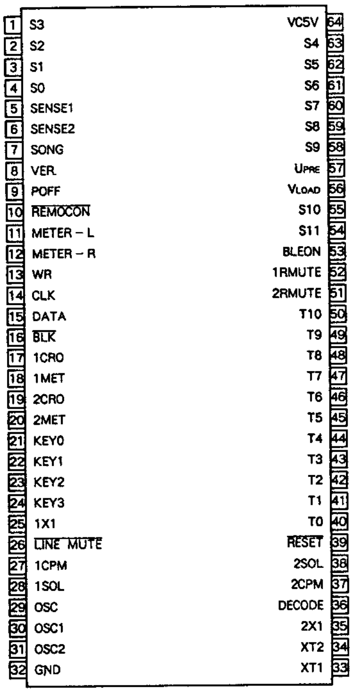
- The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

9.1 PD4381A (IC501)

● Block diagram


FL
12seg.x11grid.
KEY matrix
12 × 4
Expansion IC
LC7570
AUTO BLE
SOUND EQ
CPU
PD4381A
I Mechanism
II Mechanism
Meter circuit
5 bit

● Pin arrangement


1 S3
2 S2
3 S1
4 S0
5 SENSE1
6 SENSE2
7 SONG
8 VER.
9 POFF
10 REMOCON
11 METER – L
12 METER – R
13 WR
14 CLK
15 DATA
16 BLK
17 1CRO
18 1MET
19 2CRO
20 2MET
21 KEY0
22 KEY1
23 KEY2
24 KEY3
25 1X1
26 LINE MUTE
27 1CPM
28 1SOL
29 OSC
30 OSC1
31 OSC2
32 GND
64 VC5V
63 S4
62 S5
61 S6
60 S7
59 S8
58 S9
57 UPRE
56 VLOAD
55 S10
54 S11
53 BLEON
52 1RMUTE
51 2RMUTE
50 T10
49 T9
48 T8
47 T7
46 T6
45 T5
44 T4
43 T3
42 T2
41 T1
40 T0
39 RESET
38 2SOL
37 2CPM
36 DECODE
35 2X1
34 XT2
33 XT1

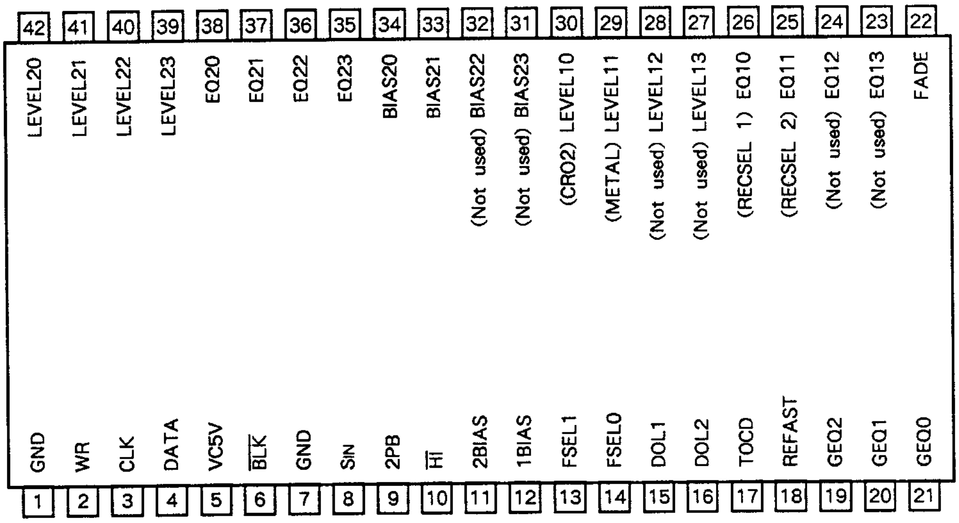
● Terminal descriptions

Pin No.	Name	I/O	Descriptions	Pin No.	Name	I/O	Descriptions
1	S3	O	Segment output, key scan output, level scan output terminal	16	BLK	O	Output stop output terminal for expansion IC
2	S2	O	Segment output, key scan output, level scan output terminal	17	1CRO	I	1 mechanism CrO2 detection input terminal "L"=SW ON
3	S1	O	Segment output, key scan output, level scan output terminal	18	1MET	I	1 mechanism METAL detection input terminal "L"=SW ON
4	S0	O	Segment output, key scan output, level scan output terminal	19	2CRO	I	2 mechanism CrO2 detection input terminal "L"=SW ON
5	SENSE1	I	1 mechanism sensing pulse input terminal	20	2MET	I	2 mechanism METAL detection input terminal "L"=SW ON
6	SENSE2	I	2 mechanism sensing pulse input terminal	21	KEY0	I	Input terminal for key scan
7	SONG	I	SONG input terminal "H"=SONG exists.	22	KEY1	I	Input terminal for key scan
8	VER.	I	VER. switching terminal	23	KEY2	I	Input terminal for key scan
9	POFF	I	POWER OFF input terminal "H" active	24	KEY3	I	Input terminal for key scan
10	REMOCON	I	Remote commander input terminal	25	1 × 1	O	1 mechanism normal speed/double speed switching output terminal "L"=Double speed
11	METER – L	I	Input terminal for L cH level detection	26	LINE MUTE	O	Line mute output terminal "L"=ON
12	METER – R	I	Input terminal for R cH level detection	27	1CPM	O	1 mechanism capstan motor driving terminal "H"=ON
13	WR	O	Output timing output terminal for expansion IC	28	1SOL	O	1 mechanism solenoid driving terminal "H"=ON
14	CLK	O	Clock output terminal for expansion IC	29	OSC	O	400/10 kHz square wave output terminal for AUTO BLE
15	DATA	O	Data output terminal for expansion IC	30	OSC1	–	Crystal/ceramic connecting terminal for main system clock oscillation

Pin No.	Name	I/O	Function	Pin No.	Name	I/O	Function
31	OSC2	–	Crystal/ceramic connecting terminal for main system clock oscillation	48	T8	O	Grid output terminal for FL display
32	GND	–	GND	49	T9	O	Grid output terminal for FL display
33	XT1	I	Crystal connecting terminal for sub-system clock oscillation (Not used)	50	T10	O	Grid output terminal for FL display
34	XT2	–	Crystal connecting terminal for sub-system clock oscillation (Not used)	51	2RMUTE	O	2 mechanism REC mute output terminal "H"=ON
35	2 × 1	O	2 mechanism normal speed/double speed switching output terminal "L"=Double speed	52	1RMUTE	O	1 mechanism REC mute output terminal "H"=ON
36	DECODE	O	Decode/encode output terminal "H"=DECODE, "L"=ENCODE	53	BLEON	O	AUTO BLE ON output terminal On at BLE
37	2CPM	O	2 mechanism capstan motor driving terminal "H"=ON	54	S11	O	Segment output, key scan output terminal
38	2SOL	O	2 mechanism solenoid driving terminal "H"=ON	55	S10	O	Segment output, key scan output terminal
39	$\overline{\text{RESET}}$	I	System reset input terminal "L" active	56	VLOAD	–	Pull-down resistor connecting terminal for FL controller/driver (Not used)
40	T0	O	Grid output terminal for FL display	57	VPRE	–	Power supply terminal for FL controller/driver output buffer
41	T1	O	Grid output terminal for FL display	58	S9	O	Segment output, key scan output terminal
42	T2	O	Grid output terminal for FL display	59	S8	O	Segment output, key scan output terminal
43	T3	O	Grid output terminal for FL display	60	S7	O	Segment output, key scan output terminal
44	T4	O	Grid output terminal for FL display	61	S6	O	Segment output, key scan output terminal
45	T5	O	Grid output terminal for FL display	62	S5	O	Segment output, key scan output terminal
46	T6	O	Grid output terminal for FL display	63	S4	O	Segment output, key scan output, level scan output terminal
47	T7	O	Grid output terminal for FL display	64	VC5V	–	+5V power supply terminal

9.2 LC7570 (IC510)

● Port arrangement


42 LEVEL20
41 LEVEL21
40 LEVEL22
39 LEVEL23
38 EQ20
37 EQ21
36 EQ22
35 EQ23
34 BIAS20
33 BIAS21
32 (Not used) BIAS22
31 (Not used) BIAS23
30 (CRO2) LEVEL10
29 (METAL) LEVEL11
28 (Not used) LEVEL12
27 (Not used) LEVEL13
26 (RECSEL 1) EQ10
25 (RECSEL 2) EQ11
24 (Not used) EQ12
23 (Not used) EQ13
22 FADE
1 GND
2 WR
3 CLK
4 DATA
5 VC5V
6 BLK
7 GND
8 SIN
9 2PB
10 HI
11 2BIAS
12 1BIAS
13 FSEL1
14 FSEL0
15 DOL1
16 DOL2
17 TOCD
18 REFAST
19 GEQ2
20 GEQ1
21 GEQ0

The ( ) contains the pin names for CT-W701R.

● Terminal descriptions

Pin No.	Name	Descriptions	Pin No.	Name	Descriptions
1	GND	Pull-down resistor COMMON terminal	24	EQ12	Output terminal bit 2 for 1 mechanism AUTO BLE EQ correction (CT-W701R is not used)
2	WR	Output timing input terminal	25	EQ11	Output terminal bit 1 for 1 mechanism AUTO BLE EQ correction (CT-W801R, W851R)
3	CLK	Clock input terminal		RECSEL2	REC mode 2 mechanism select output terminal (CT-W701R)
4	DATA	Data input terminal	26	EQ10	Output terminal bit 0 for 1 mechanism AUTO BLE EQ correction (CT-W801R, W851R)
5	VC5V	+5V power supply terminal		RECSEL1	REC mode 1 mechanism select output terminal (CT-W701R)
6	$\overline{\text{BLK}}$	Output stop input terminal	27	LEVEL13	Output terminal bit 3 for 1 mechanism AUTO BLE LEVEL correction (CT-W701R is not used)
7	GND	GND	28	LEVEL12	Output terminal bit 2 for 1 mechanism AUTO BLE LEVEL correction (CT-W701R is not used)
8	SIN	Not used	29	LEVEL11	Output terminal bit 1 for 1 mechanism AUTO BLE LEVEL correction (CT-W801R, W851R)
9	2PB	REC/PB head switching output terminal "H" during playing back 2 mechanism		METAL	Recording system METAL auto tape select output terminal (CT-W701R)
10	$\overline{\text{HI}}$	Playback equalizer switching output terminal "L" at HI position	30	LEVEL10	Output terminal bit 0 for 1 mechanism AUTO BLE LEVEL correction (CT-W801R, W851R)
11	2BIAS	Output terminal for 2 mechanism BIAS oscillation		CRO2	Recording system CRO2 auto tape select output terminal (CT-W701R)
12	1BIAS	Output terminal for 1 mechanism BIAS oscillation	31	BIAS11	Output terminal bit 1 for 1 mechanism AUTO BLE BIAS correction (CT-W701R is not used)
13	FSEL1	Frequency switching output terminal 1 for AUTO BLE	32	BIAS10	Output terminal bit 0 for 1 mechanism AUTO BLE BIAS correction (CT-W701R is not used)
14	FSEL0	Frequency switching output terminal 0 for AUTO BLE	33	BIAS21	Output terminal bit 1 for 2 mechanism AUTO BLE BIAS correction
15	DOL1	Dolby switching output terminal 1	34	BIAS20	Output terminal bit 0 for 2 mechanism AUTO BLE BIAS correction
16	DOL2	Dolby switching output terminal 2	35	EQ23	Output terminal bit 3 for 2 mechanism AUTO BLE EQ correction
17	TOCD	CD control signal output terminal	36	EQ22	Output terminal bit 2 for 2 mechanism AUTO BLE EQ correction
18	REFAST	Constant switching output terminal at meter amplifier FAST="H", SLOW="L"	37	EQ21	Output terminal bit 1 for 2 mechanism AUTO BLE EQ correction
19	GEQ2	Surround EQ output terminal 2	38	EQ20	Output terminal bit 0 for 2 mechanism AUTO BLE EQ correction
20	GEQ1	Surround EQ output terminal 1	39	LEVEL23	Output terminal bit 3 for 2 mechanism AUTO BLE LEVEL correction
21	GEQ0	Surround EQ output terminal 0	40	LEVEL22	Output terminal bit 2 for 2 mechanism AUTO BLE LEVEL correction
22	FADE	Fade out output terminal	41	LEVEL21	Output terminal bit 1 for 2 mechanism AUTO BLE LEVEL correction
23	EQ13	Output terminal bit 3 for 1 mechanism AUTO BLE EQ correction (CT-W701R is not used)	42	LEVEL20	Output terminal bit 0 for 2 mechanism AUTO BLE LEVEL correction

9.3 Power On Initializing

1. CPU Reset

When the power is turned on, the RESET terminal (Pin 39) of the CPU synchronizes with the rising of the CPU 5V. The reset is released, and processing starts from the head of the program. As each CPU port goes into the "high impedance" condition during the time from power on to reset release, it is necessary to set to "H" or "L" with external parts.

(a) Port Initializing

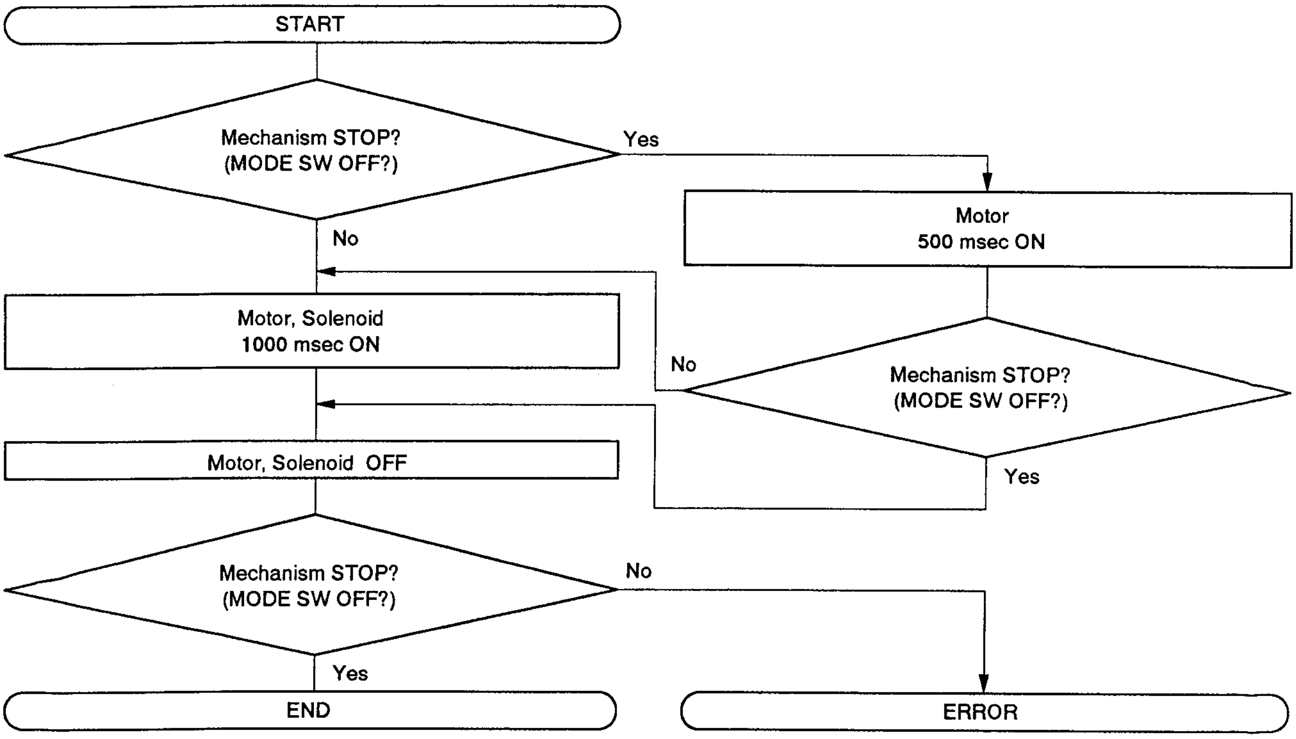
Sets the amplifier system port into the "non-active" condition.

(b) Mechanism Initializing

The initializing of the mechanism is performed as shown in the following figure in the order of 1 mechanism → 2 mechanism by setting both mechanisms into the "STOP" condition.

As the amplifier system circuit is unstable immediately after the power is turned on, key inputs (including the remote control unit) will not be accepted for about 4 seconds.

If the mechanism does not return to the "STOP" condition, it is determined as "error", and mechanism initializing is performed once again. If "error" occurs the second time, mechanism operations are stopped and "emergency" is set.


START
Mechanism STOP?
(MODE SW OFF?)
Yes
No
Motor
500 msec ON
Motor, Solenoid
1000 msec ON
No
Mechanism STOP?
(MODE SW OFF?)
Yes
Motor, Solenoid OFF
Mechanism STOP?
(MODE SW OFF?)
No
Yes
END
ERROR

9.4 Amplifier System Control

FUNCTION	DECK1	DECK2	$\overline{\text{LINE}}$ MUTE	1REC MUTE	1BIAS	2REC MUTE	2BIAS	DECODE	× 1
	STOP	STOP OR FAST	L	H	L	H	L	L	H
	PLAY		H	H	L	H	L	H	H
	PPAUSE		L	H	L	H	L	H	H
	FAST		L	H	L	H	L	L	H
	MS		L	H	L	H	L	H	H
	REC		H	L	H	H	L	L	H
	RPAUSE		H	H	L	H	L	L	H
	RMUTE		H	H	H	H	L	L	H
	STOP OR FAST	STOP	L	H	L	H	L	L	H
		PLAY	H	H	L	H	L	H	H
		PPAUSE	L	H	L	H	L	H	H
		FAST	L	H	L	H	L	L	H
		MS	L	H	L	H	L	H	H
		REC	H	H	L	L	H	L	H
		RPAUSE	H	H	L	H	L	L	H
		RMUTE	H	H	L	H	H	L	H
× 1COPY	REC	PLAY	H	H	L	L	H	H	H
	RPAUSE		H	H	L	H	L	H	H
	RMUTE		H	H	L	H	H	H	H
× 2PLAY	× 2PLAY	× 2REC	H	H	L	L	H	H	L
PARA REC	REC	REC	H	L	H	L	H	L	H
	RPAUSE	RPAUSE	L	H	L	H	L	L	H
	RMUTE	RMUTE	H	H	H	H	H	L	H

9.5 Automatic Tape Select Function

1. Playback EQ Switching
Performs the playback EQ 70 μ sec/120 μ sec switching for both sides I and II.

2. Input
Takes the SW information of the mechanism into the input port direct. Performs only types II and IV inputs for both sides I and II (CRO of CPU, MET terminal. SW ON at "L") to discriminate the TYPE of the tape.

3. Mechanism mode and input SW

I Mechanism Mode	II Mechanism Mode	Playback System	Recording System
STOP, FAST	STOP, FAST	Side II SW	Side II SW
PLAY, PPAUSE, MS	STOP, FAST	Side I SW	Side II SW
REC, RPAUSE, RMUTE	STOP, FAST	Side II SW	Side I SW
STOP, FAST	PLAY, PPAUSE, MS	Side II SW	Side II SW
STOP, FAST	REC, RPAUSE, RMUTE	Side II SW	Side II SW
PLAY	REC, RPAUSE, RMUTE	Side I SW	Side II SW

4. Output

		TYPE I (NOR)	TYPE II (CrO_2)	TYPE IV (METAL)
Playback System	$\overline{HI}$	H	L	L
Recording System	CRO2	L	H	H
	METAL	L	L	H

9.6 Relay Dolby Function

1. Relay Dolby
Controls by using two dolby slide SWs exclusive for sides I and II for each dolby IC.

2. SW Input
Takes in the respective SW conditions of sides I and II with the key matrix.

3. Mechanism Mode, Dolby Display and Real Dolby Input SW

I Mechanism Mode	II Mechanism Mode	Side I Display	Side II Display	DOLBY IC
STOP, FAST	STOP, FAST	Side I SW	Side II SW	Side II SW
PLAY, PPAUSE, MS	STOP, FAST	Side I SW	Side II SW	Side I SW
REC, RPAUSE, RMUTE	STOP, FAST	Side I SW	Side II SW	Side I SW
STOP, FAST	PLAY, PPAUSE, MS	Side I SW	Side II SW	Side II SW
STOP, FAST	REC, RPAUSE, RMUTE	Side I SW	Side II SW	Side II SW
PLAY	REC, RPAUSE, RMUTE	Side I SW	Side I SW	Side I SW
REC, RPAUSE, RMUTE	REC, RPAUSE, RMUTE	Side I SW	Side I SW	Side I SW

For models without this relay dolby function, the SW of side II is always taken in to select the dolby type.

5. Output

	DOL0	DOL1
Dolby OFF	H	L
Dolby B	L	H
Dolby C	L	L

6. Mechanism Mode and Dolby Mute Control

	Dolby Switching	
	LINE MUTE	REC MUTE
STOP		
FF, REW		
PLAY	ON	
PPAUSE		
MS		
REC	OFF	ON
RPAUSE	OFF	
RMUTE	OFF	
X1COPY	ON	OFF
X2COPY	ON	OFF
PARA REC	OFF	ON

The "ON" in the table indicates the 150 msec forcible ON.
MUTE processing is not performed during OFF.

9.7 AUTO BLE Function

The AUTO BLE function corrects any random tape so that the recording playback frequency characteristics become flat.

1. Differences according to Models

①CT-W801R, CT-W851R (TWIN AUTO BLE, 3 point BLE)
Both sides I and II have its own correction circuit. The BLE data is output from the respective exclusive BLE output ports.

②CT-W701R (RELAY AUTO BLE, 3 point BLE)
The heads of sides I and II are tuned by switching the SWs at the correction circuit shared by both sides I and II. After tuning, the BLE data of both sides I and II are recorded by the CPU. The BLE data of the recording side is output from the BLE output port shared by sides I and II.

2. Accepted Conditions

- When the side performing AUTO BLE is "REC possible".
- When the side performing AUTO BLE is in the STOP mode, and other sides are STOP, FF, or REW.

3. Operations

- The AUTO BLE operations can be started by pressing the AUTO BLE key when the two conditions above are present.
- When the AUTO BLE is started, both the $\overline{\text{LINE MUTE}}$ terminal ("L" output) and BLEON terminal (Pin 53) turn on. When the BLEON terminal turns on, the line input becomes muted, DOLBY turns off, and the MPX filter turns on.
- After forwarding the tape for 1 second with FF (leader path), perform the following settings.
- After completing the following settings, rewind to the BLE start point with REW, and stop.

(a) Bias Setting

Change the bias current in the three stages; REF, − 10% and +10%. Record and playback the 400 Hz and 10 kHz signals at the respective bias values. Select the bias value at which the playback level difference is the minimum. Next, check that the 400 Hz playback level at this bias value is not greatly different from the level which is to be taken as the reference. If it is, re-select the bias value at which the level becomes closest to the reference level.

(b) Level Setting

Record and playback the 400 Hz signal while sweeping it in the 16 stage steps (± approximately 3 dB range. LEVEL DATA=0 to 15. REF. DATA is 8.), and set so that the playback level becomes closest to the level to be taken as the reference.

(c) EQ Setting

Record the 10 kHz signal while sweeping it in the 8 stage steps (± approximately 3 dB range. EQ DATA=0 to 7. REF. DATA is 5 for the NORMAL, CrO2 TAPE, and 3 for the METAL TAPE.) Finally, record the 3 kHz with the reference EQ. Next, set so that the playback level becomes close to the level to be taken as the reference. If the 3 kHz playback level is lower than the level to be taken as the reference by more than 0.5 dB, perform mid-range correction (raise the mid-range level), and take the slack of the f characteristics in the vicinity of 3 kHz.

(d) Check points

Check points have been provided to prevent incorrect adjustments during AUTO BLE operations. Errors are determined when the various check points cannot be passed. When errors have been determined, the mechanism is stopped, BIAS, LEVEL and EQ are returned to their reference values, and the "ERR" blinking display is shown. This display continues until the normal display is returned by pressing a certain key.

- STOP check

Error is determined when the mechanism stops due to tape end. (When BLE is set, forcible STOP is set with tape end.)

- Blank check

Perform the 500 msec blank recording immediately before recording the test signal. Return to the center of this blank when rewinding. If it is blank at the start of playback, the tape is determined as being at its correct position. "Error" is determined if it is not blank.

- Recording signal rising check

The rising of the playback signal is most important for BLE. The signal is determined according to the time from this rising. The signal must rise within 500 msec from blank check at the latest. If this cannot be confirmed within this period, it is determined as "error".

- Leader tape check

Check if the tape is in the leader tape section by checking if the playback signal is present or absent immediately after EQ setting. Error is determined if there is no signal in the leader tape.

(e) Mask PLAY and Blank REC

In the mechanism, as the tape running also does not become stable immediately after PLAY mode assist has been completed, some time will be required for running stabilization. This time is 1.5 seconds. At the start of BIAS recording, at least 0.5 to 2 seconds are required for blank REC. The 1.5 seconds mask play is also performed before starting each check PLAY.

(f) Rewinding

For the BLE of conventional mechanisms, rewinding was performed by REW (FF) because the tape position could be determined with the tape counter. However, for the BLE of this unit, this method cannot be used as the tape counter lags very easily. The tape is therefore rewound using PLAY which has very little lagging. The rewinding amount is controlled by time. However, the tape may advance more than required in some cases when the assist for this side cannot be performed because of the assists of other mechanisms due to stagger processing. This time during which the tape was advanced is measured, and the tape is advanced in the reverse direction for this time during the next PLAY operation. This enables an almost precise start position searching to be performed.

(g) RELAY AUTO BLE

This will be relayed to side II after those for side I have been completed by pressing the AUTO BLE key of side I in the RELAY MODE ON, if BLE has not been adjusted for both sides I and II. The RELAY mode is released when adjustments for side II start.

(h) Test Signal Frequency Switching

The test signal frequency switching is controlled in the following way using two FSEL0 and FSEL1 port outputs.

Frequency	FSEL0	FSEL1
400Hz	H	H
3kHz	L	H
10kHz	H	L

For 2 POINT BLE, the 3 kHz control will not be performed.

(i) BLE related Port Output and BLE Data

	BIAS*1	BIAS*0	DATA
−10%	L	H	1
REF	H	L	2
+10%	L	L	0

400Hz	LEVEL*3	LEVEL*2	LEVEL*1	LEVEL*0	DATA
MIN	H	H	H	H	F
REF	H	L	L	H	8
MAX	L	L	L	L	0

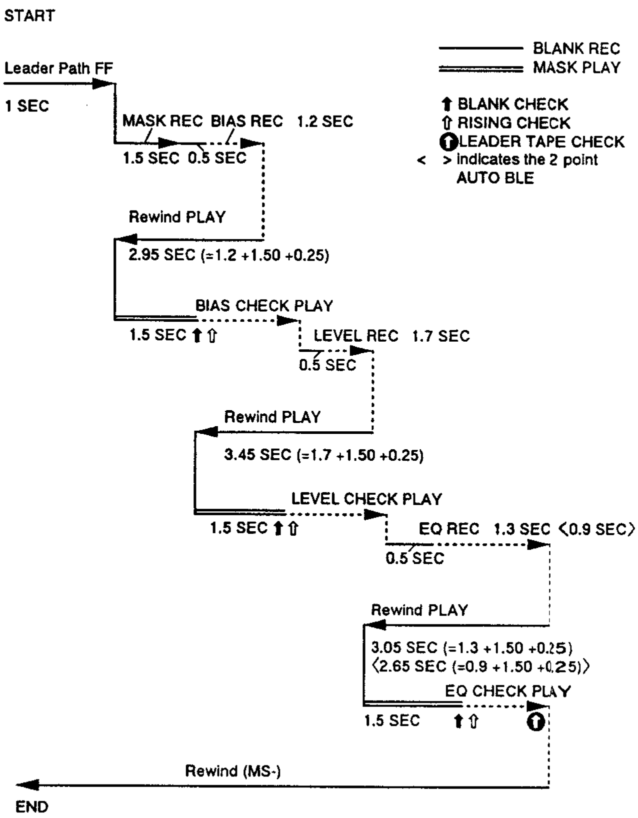
10kHz	EQ*2	EQ*1	EQ*0	DATA 1
MIN	H	H	H	7
REF	H (L)	L (H)	H (H)	5 (3)
MAX	L	L	L	0

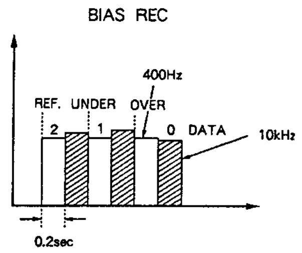
3kHz	EQ*3	DATA
UP	L	DATA1
REF	H	DATA1 + 8

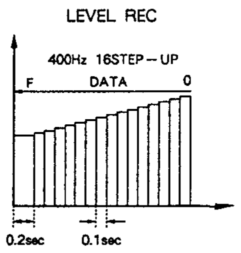
Side I becomes 1 and side II becomes 2 for *.
( ) indicates that for the metal tape.

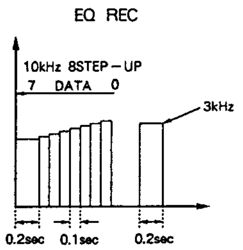
The respective BLE DATAs of sides I and II can be checked on the counter for any mode by pressing the 2-PAUSE +1-FWD +2-FWD key simultaneously.

(j) AUTO BLE Time Chart


START
Leader Path FF
1 SEC
MASK REC
BIAS REC
1.2 SEC
1.5 SEC
0.5 SEC
Rewind PLAY
2.95 SEC (=1.2 +1.50 +0.25)
BIAS CHECK PLAY
1.5 SEC ⬆⇧
LEVEL REC
1.7 SEC
0.5 SEC
Rewind PLAY
3.45 SEC (=1.7 +1.50 +0.25)
LEVEL CHECK PLAY
1.5 SEC ⬆⇧
EQ REC
1.3 SEC ⟨0.9 SEC⟩
0.5 SEC
Rewind PLAY
3.05 SEC (=1.3 +1.50 +0.25)
⟨2.65 SEC (=0.9 +1.50 +0.25)⟩
EQ CHECK PLAY
1.5 SEC
⬆⇧
Rewind (MS-)
END
BLANK REC
MASK PLAY
⬆ BLANK CHECK
⇧ RISING CHECK
LEADER TAPE CHECK
< > indicates the 2 point AUTO BLE


BIAS REC
400Hz
REF.
UNDER
OVER
2
1
0
DATA
10kHz
0.2sec


LEVEL REC
400Hz 16STEP – UP
F
DATA
0
0.2sec
0.1sec


EQ REC
10kHz 8STEP – UP
7
DATA
0
3kHz
0.2sec
0.1sec
0.2sec

3kHz is not recorded and played back for 2 POINT BLE.

9.8 Sound EQ Function

Function which equalizes the input signal with a frequency characteristic variable circuit being provided at the line input. There are two positions;CAR for car stereos and PORTABLE for headphone stereos. These can be switched using the slide SWs.

- Accepted conditions

Modes which operate basically during recording only (CPU constantly checks the condition of the SW, and outputs to the port.)

1. Output

The CPU controls in the following way using the 3 bits;GEQ0, GEQ1 and GEQ2.

Output Port	CAR	OFF	PORTABLE
GEQ0	L	L	H
GEQ1	H	L	H
GEQ2	H	L	H

2. Display

Displays in the following way using the counter and meter when the slide SW has been switched.

①Counter display

Displays "PORT" on side I and "ABLE" on side II for PORTABLE, and displays "CAR" on both sides for CAR one word at a time at an interval of 80 msec twice.

"P "→"PO "→"POR "→"PORT "→ "PORTA "→"PORTAB "→"PORTABL "→"PORTABLE" → Repeated once more.

②Meter Display

Synchronizes the frequency characteristic corrected by the sound EQ with the character of the counter display using the meter in a pseudo way, and displays every segment one at a time at an interval of 80 msec twice. The following will be displayed when the meters have all lighted up.

PORTABLE

■■■■□□■■

□□□□■■□□

OFF

□□□□□□□□

■■■■■■■■

CAR

■■□□□□■■

□□■■■■□□

3. Mechanism Mode, Mute Control and Display

	Sound EQ Switching		
	LINE MUTE	REC MUTE	Display
STOP			○
FF, REW			○
PLAY			×
PPAUSE			×
MS			×
REC	ON	ON	○
RPAUSE	ON		○
RMUTE	ON		○
X1COPY			×
X2COPY			×
PARA REC	ON	ON	○

The "ON" in the table indicates the 150 msec forcible ON.

○······Display ON

×······Display OFF

9.9 CD Synchro Function

The CD synchro function sets the deck into the REC condition and the CD player into the PLAY condition, and performs tape copy from the CD with the one touch input of the CD SYNCRO key on the deck side when the PIONEER CD player is connected with a 2.5 ϕ monaural jack (2 wires) (Common GND with AUDIO jack).

1. Accepted Conditions

- Connected to the PIONEER CD player (corresponding to CD SYNCRO function) with the 2.5 ϕ monaural jack,and shares the GND with the AUDIO jack.
- A REC possible tape is inserted in either side I or II, or both sides I and II.
- When both sides I and II are in the STOP mode or only one side is in the FF, REW modes.

2. Operations

- Operates with the input of the CD SYNCHRO key when all three conditions above are present. At this time, the REC possible side (Side I when both sides are REC possible) starts REC with the CD SYNCHRO key rising edge input (press the key). Following, the CD starts PLAY with the CD SYNCHRO key falling edge input (Press the key), and the deck copies from the CD. Therefore, while the CD SYNCHRO key is being pressed, a blank is created on the tape.
- During the CD SYNCHRO COPY mode, the REC side only accepts the STOP key and the STOP mode is set. The opposite side of the side recording accepts the FF, REW and STOP keys and starts operating.

- In the case of tape end, the CD player searches for the head of the song which had been interrupted first, and then sets into the PLAY/PAUSE mode. (PLAY BACK PAUSE). Although the end processing is performed according to the reverse mode, when the tape becomes reversed, the CD player will not played but made to wait at PLAY/PAUSE for 10 seconds after REC has been set to let the leader section to pass by.
- If side II is in the FF or REW mode when relaying from side I to side II, the relay will not be performed.
- When the relay mode is on, relay from side I to II is performed when the CD player performs the first disc changing. (When side II can be relayed)
- When more than one minute has passed after both sides have stopped, the CD player which has been set into the PLAY BACK PAUSE mode will stop (fail-safe). If a tape is re-inserted during this time and the CD SYNCHRO key is pressed, the CD SYNCHRO COPY can be continued.
- In the case of disc end (when disc is not changed), the deck is set into REC/PAUSE and then stops after 1 minute (fail-safe). However, the CD SYNCHRO COPY can be continued once again by pressing the PLAY key of the CD player during this time.
- For disc changes during CD SYNCHRO COPY with a multi or twin CD player, the deck sets into REC/PAUSE during disc changing. The CD SYNCHRO COPY continues once again after the changing completes and the CD player becomes PLAY.
- The deck side has been adjusted so that the blank time created on the tape during tape end and disc change is 4 to 5 seconds.

3. The receiving and transmission format of the control signal between the deck and CD player during the CD SYNCHRO mode is as follows.

- When the deck commands the CD player

CD Player Mode	TOCD
PLAY	"L" EDGE
PLAY BACK PAUSE	"H" EDGE

- When the CD player commands the deck

Deck Mode	FROM CD
REC/PAUSE	"H" EDGE
REC (PAUSE released)	"L" EDGE

- When the deck informs the CD player of the current mode

Deck Mode	TO CD
REC	"L" STATE
REC/PAUSE	"H" STATE
Other than above	"H" STATE

- When the CD player informs the deck of the current mode

CD Player Mode	FROM CD
PLAY, SEARCH	"L" STATE
PLAY BACK PAUSE	"L" STATE
Other than above	"H" STATE

Note)The ''H" and ''L" in the table indicate the ''active" after the outputs of the two CPU ports have been inverted via the buffer (Active received by the two CPU input ports).

9.10 Display Function

PD4381A Indicator Lighting Mode

1. I FWD II FWD

		I				II				COPY	HI SPEED
		REV	FWD	PLAY	REC	REV	FWD	PLAY	REC		
I FWD	STOP		▶								
	FF		✳▶✳								
	REW	✳◀✳	▶								
	MS +		✳▶✳	✳○✳							
	MS –	✳◀✳	▶	✳○✳							
	PLAY		▶	○							
	PPAUSE		-▶-	○							
	REC		▶		●						
	RPAUSE		-▶-		●						
	RMUTE		▶		-●-						
II FWD	STOP						▶				
	FF						✳▶✳				
	REW					✳◀✳	▶				
	MS +						✳▶✳	✳○✳			
	MS –					✳◀✳	▶	✳○✳			
	PLAY						▶	○			
	PPAUSE						-▶-	○			
	REC						▶		●		
	RPAUSE						-▶-		●		
	RMUTE						▶		-●-		
× 1 COPY			▶	○			▶		●	□	
× 2 COPY			▶	○			▶		●	□	□

Those displayed with ✳ indicate a 160 msec blinking.
Those displayed with -¦- indicate a 320 msec blinking.
Others are lit.

2. I REV II REV

		I				II				COPY	HI SPEED
		REV	FWD	PLAY	REC	REV	FWD	PLAY	REC		
I FWD	STOP	◀									
	FF	◀	✳▶✳								
	REW	◀									
	MS +	✳◀✳		✳○✳							
	MS −	◀	✳▶✳	✳○✳							
	PLAY	◀		○							
	PPAUSE	-◀-		○							
	REC	◀			●						
	RPAUSE	-◀-			●						
	RMUTE	◀			-●-						
II FWD	STOP					◀					
	FF					◀	✳▶✳				
	REW					✳◀✳					
	MS +					✳◀✳		✳○✳			
	MS −					◀	✳▶✳	✳○✳			
	PLAY					◀		○			
	PPAUSE					-◀-		○			
	REC					◀			●		
	RPAUSE					-◀-			●		
	RMUTE					◀			-●-		
X1 COPY		◀		○		◀			●	□	
X2 COPY		◀		○		◀			●	□	□

Those displayed with ✳ indicate a 160 msec blinking.
Those displayed with -¦- indicate a 320 msec blinking.
Others are lit.

3. I FWD II REV

		I				II				COPY	HI SPEED
		REV	FWD	PLAY	REC	REV	FWD	PLAY	REC		
I FWD	STOP		▶								
	FF		✳▶								
	REW	✳◀	▶								
	MS +		✳▶	✳○							
	MS −	✳◀	▶	✳○							
	PLAY		▶	○							
	PPAUSE		-▶-	○							
	REC		▶		●						
	RPAUSE		-▶-		●						
	RMUTE		▶		-●-						
II FWD	STOP					◀					
	FF					◀	✳▶				
	REW					✳◀					
	MS +					✳◀		✳○			
	MS −					◀	✳▶	✳○			
	PLAY					◀		○			
	PPAUSE					-◀-		○			
	REC					◀			●		
	RPAUSE					-◀-			●		
	RMUTE					◀			-●-		
X1 COPY			▶	○		◀			●	□	
X2 COPY			▶	○		◀			●	□	□

Those displayed with ✳ indicate a 160 msec blinking.
Those displayed with -¦- indicate a 320 msec blinking.
Others are lit.

4. I REV II FWD

		I				II				COPY	HI SPEED
		REV	FWD	PLAY	REC	REV	FWD	PLAY	REC		
I FWD	STOP	◄									
	FF	◄	✳►✳								
	REW	✳◄✳									
	MS +	✳◄✳		✳○✳							
	MS –	◄	✳►✳	✳○✳							
	PLAY	◄		○							
	PPAUSE	-◄-		○							
	REC	◄			●						
	RPAUSE	-◄-			●						
	RMUTE	◄			-●-						
II FWD	STOP						►				
	FF						✳►✳				
	REW					✳◄✳	►				
	MS +						✳►✳	✳○✳			
	MS –					✳◄✳	►	✳○✳			
	PLAY						►	○			
	PPAUSE						-►-	○			
	REC						►		●		
	RPAUSE						-►-		●		
	RMUTE						►		-●-		
X1 COPY		◄		○			►		●	□	
X2 COPY		◄		○			►		●	□	□

Those displayed with ✳ indicate a 160 msec blinking.
Those displayed with -¦- indicate a 320 msec blinking.
Others are lit.

9.11 Test Mode

MODE NO.	Display	Input key	LINE MUTE	2REC MUTE	2 BIAS	1REC MUTE	1 BIAS	Adjustment and Check Contents
0	0	STOP	ON	ON	OFF	ON	OFF	
1	1	RELAY/ SKIP	ON	ON	OFF	ON	OFF	◇SW check • When there is no ''half", the respective counters will display ''HALF". • Incorrect erasure detection check FWD recording possible : "▶" display lights up REV recording possible : "◀" display lights up • Timer SW check TIMER REC : "FADE" OFF : "[HI −]" TIMER PLAY : "COPY" • Reverse SW check ⇄ : "BLE" ↩ : "I" ↻ : "II" • Sound EQ SW check PORTABLE : "[CD SYNC]" OFF : "RELAY/SKIP" CAR : "PLAY" • Tape detection check Side II check NORMAL : Lch + 4dB lights up Rch + 4 dB lights up CrO2 : Lch + 4 dB turns off Rch + 4 dB lights up METAL : Lch + 4 dB turns off Rch + 4 dB turns off Side I check NORMAL : Lch − 20dB lights up Rch − 20dB lights up CrO2 : Lch − 20dB turns off Rch − 20dB lights up METAL : Lch − 20dB turns off Rch − 20dB turns off
2	2 400 (Side I)	NORMAL SPEED	OFF	OFF	OFF	OFF	OFF	◇For AUTO BLE 400 Hz OSC output level adjustment mode • Adjust with meter so that − 1 dB blinks. (LINE OUT output = − 26 dBv) • Meter becomes BLE range.

MODE NO.	Display Side II	Input key	LINE MUTE	2REC MUTE	2 BIAS	1REC MUTE	1 BIAS	Adjustment and Check Contents
3	3 10k (Side I)	HIGH SPEED	OFF	OFF	OFF	OFF	OFF	◇For AUTO BLE 10 kHz OSC output level adjustment mode • Adjust with meter so that −1 dB blinks. (LINE OUT output = −26 dBv) • Meter becomes BLE range.
4	4 3k (Side I)	2 − BLE	OFF	OFF	OFF	OFF	OFF	◇For AUTO BLE 3 kHz OSC output level adjustment mode • Adjust with meter so that −1 dB blinks. (LINE OUT output = −26 dBv) • Meter becomes BLE range. Not for 2 POINT BLE.
5	5	FWD REV FF REW	OFF	ON	OFF	ON	OFF	◇Tape speed adjustment mode • During play (excluding during assist), double speed PLAY is set by inputting the FAST key (FF of either sides I and II or REW key). During double speed PLAY, normal PLAY is set by inputting the FWD or REW key. • PLAY is possible even in the ''No Half" condition. ◇Auto stop check • Only for this mode, the auto stop at sudden tape end is 1 second (Normally 4 seconds). • Normal reverse operations are performed. However if reverse is performed during double speed PLAY, the normal PLAY is set. ◇BLANK SKIP check • Only for this mode, the BLANK SKIP function operates if the ''no signal" condition continues for 4.7 seconds in the ''PLAY" condition (Normaly 15 seconds.)
6	6	2 − CTR RESET	ON	ON	ON	ON	ON	◇Erasure current check mode • Erase current check according to TAPE TYPE is possible. ''BIAS" blinking display is set.
7	7	2 − CTR MODE	OFF	OFF	OFF	OFF	OFF	◇Mute off mode Mode which turns both LINE MUTE and REC MUTE off.
8	−	−	−	−	−	−	−	———

MODE NO.	Display	Input key	LINE MUTE	2REC MUTE	2 BIAS	1REC MUTE	1 BIAS	Adjustment and Check Contents
9	9	2 - MUTE	ON	ON	ON	ON	OFF	Side II BIAS SWEEP mode (BIAS pattern display)
10	A	2 - PAUSE	OFF	OFF	OFF	ON	OFF	Side II LEVEL SWEEP mode (LEVEL pattern display)
11	b	2 - REC	OFF	OFF	OFF	ON	OFF	Side II EQ SWEEP mode (EQ pattern display)
12	–	–	–	–	–	–	–	————
13	d	1 - MUTE	ON	ON	OFF	ON	ON	Side I BIAS SWEEP mode (BIAS pattern display)
14	E	1 - PAUSE	OFF	ON	OFF	OFF	OFF	Side I LEVEL SWEEP mode (LEVEL pattern display)
15	F	1 - REC	OFF	ON	OFF	OFF	OFF	Side I EQ SWEEP mode (EQ pattern display)

◇Setting the test mode

When both sides I and II are in the STOP mode, the test mode can be set by setting the reverse mode SW to ⇄ mode and short – circuiting the fixed jumper wire.

◇Releasing the test mode

The test mode can be released by pressing the COUNTER RESET key of side I or turning off the power.

◇CD SYNCHRO check (Can be checked in any of the above modes.)

- CD SYNCHRO key check······While the CD SYNCHRO key is pressed, the REC display of side II will be lit (Only if a cable is connected to the CD SYNCHRO jack.)
- Input/output signal check.······The REC display will light up while the COUNTER MODE key of side I is pressed only if a short – circuited cable is connected to the input/output.

9.12 Demonstration Function

- Mode which performs demonstration display.

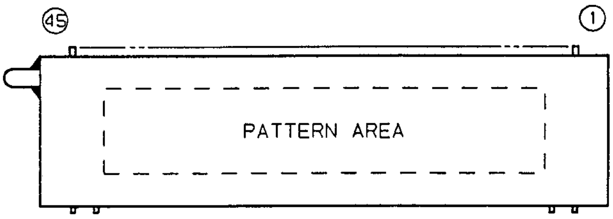
◇Accepted Conditions

- When both sides I and II are in the STOP mode.

◇Operations

- When both the above conditions are present, the demonstration mode can be set by pressing the 2-COUNTER RESET key and 2-PAUSE key simultaneously.
- This mode can be released by outputting/inputting the "half", key inputs or turning off the power.

- **FL INFORMATION**

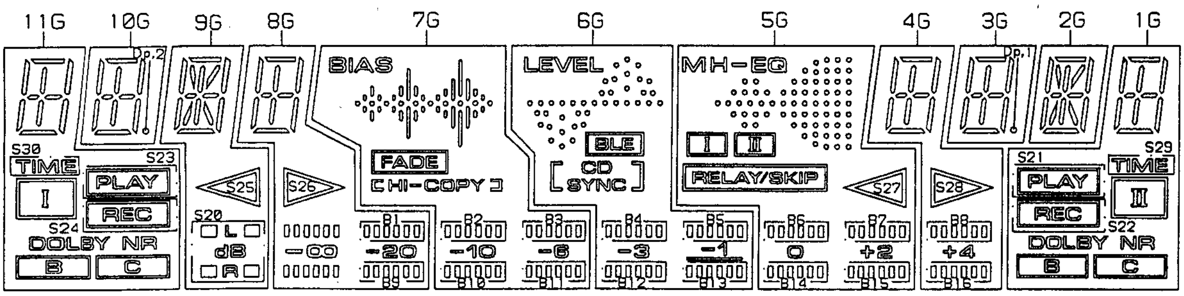

㊺
①
PATTERN AREA

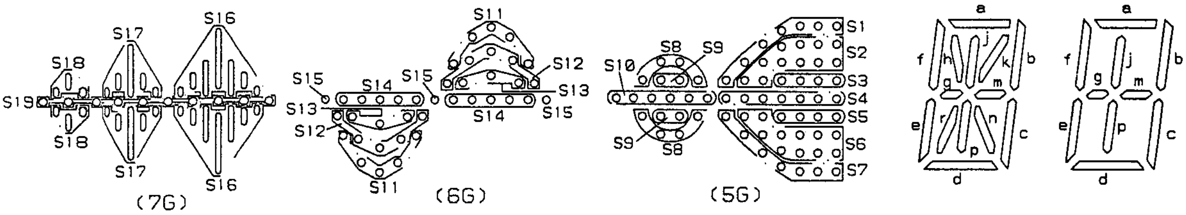
Pin Connection

PIN NO.	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	NP	NC	NC	NC	NC	P4	P5	P3	P12	P8	P9	P10	P7	P11	P6	P2	P1	P13	P15	P14	P19	P16	P18	P17	P23	7G	6G	5G	11G	10G	9G	8G	4G	3G	2G	1G	P20	P21	P22	NC	NP	F1	F1

NOTE 1) F1,F2 --- Filament
2) NP ------ No pin
3) NC ------ No connection
4) 1G~11G -- Grid

Grid Assignment


11G
10G
9G
8G
7G
6G
5G
4G
3G
2G
1G
Dp.2
Dp.1
BIAS
LEVEL
MH-EQ
FADE
BLE
CD SYNC
HI-COPY
I
II
RELAY/SKIP
S30
TIME
S23
PLAY
REC
S24
DOLBY NR
B
C
S25
S26
S20
L
dB
R
−∞
B1
-20
B9
B2
-10
B10
B3
-6
B11
B4
-3
B12
B5
-1
B13
B6
0
B14
B7
+2
B15
B8
+4
B16
S27
S28
S21
S29
S22


S16
S17
S18
S19
S18
S17
S16
(7G)
S11
S12
S13
S14
S15
S15
S14
S13
S12
S15
S11
(6G)
S8
S9
S10
S9
S8
S1
S2
S3
S4
S5
S6
S7
(5G)
a
f
h
j
k
b
g
m
e
r
n
c
p
d
a
f
j
b
g
m
e
p
c
d

Anode Connection

	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	a	a	a	a	S18	S14	S4	a	a	a	a
P2	b	b	b	b	S17	S13	S2, S6	b	b	b	b
P3	c	c	c	c	HI-	S11	RELAY/SKIP	c	c	c	c
P4	d	d	d	d	FADE	BLE	I	d	d	d	d
P5	e	e	e	e	COPY	[CD SYNC]	S27	e	e	e	e
P6	f	f	f	f	S16	S12	S1	f	f	f	f
P7	m	m	g, m	m	B2	B4	B6	m	m	g, m	m
P8	TIME	DP, 2	k, r	S26	B10	B12	B14	S28	DP, 1	k, r	TIME
P9	PLAY	j, p	n	B1	B3	B5	B7	B8	j, p	n	PLAY
P10	REC	–	S25	B9	B11	B13	B15	B16	–	–	REC
P11	g	g	–	g	–	–	–	g	g	–	g
P12	C	–	j, p	–	BIAS	LEVEL	II	–	–	j, p	C
P13	DOLBY NR	–	–	–	–	–	EQ	–	–	–	–
P14	–	–	–	–	–	–	–	–	–	–	DOLBY NR
P15	B	–	L dB R	−∞ -20	-10 -6	-3 -1	0 +2	+4	–	–	B
P16	–	–	–	–	–	–	S9	–	–	–	–
P17	–	–	–	–	–	–	S7	–	–	–	–
P18	–	–	–	–	–	–	S3, S5	–	–	–	–
P19	–	–	–	–	–	–	S8	–	–	–	–
P20	I	–	–	–	S19	S15	S10	–	–	–	II
P21	–	–	–	–	–	–	H	–	–	–	–
P22	–	–	–	–	–	–	M –	–	–	–	–
P23	j, p	–	h	j, p	–	–	–	j, p	–	h	j, p

10. CIRCUIT DESCRIPTIONS

● SOUND EQ CIRCUIT

10.1 Purpose

More and more people are recording their favorite music onto cassette tapes and then listening to them using a portable stereo or car stereo.

However, when a tape recorded in the normal way on conventional equipment is played back through a portable stereo or car stereo, the low and high frequency ranges are often not strong enough due to the characteristics of the headphones or the in-car environment.

The new Sound EQ function boosts the level of these frequencies by altering the frequency characteristics of the music signal during recording. This allows users to produce tapes that have sonic characteristics ideal for playback on portable stereos or car stereos.

10.2 Operation

Operation is a simple as setting the SOUND EQ switch to either PORTABLE or CAR, as appropriate, before beginning recording. When the setting is made, the indication PORTABLE or CAR appears on the fluorescent counter display for a few seconds and the level meter changes to show the frequency curve.

10.3 Features

- The frequency characteristics of the line input are changed to match the requirements of portable stereos or car stereos. This has no adverse effects on S/N ratio or distortion levels.
- When Sound EQ is combined with BLE, compensation for the tape's specific characteristics can be performed before recording optimized for portable stereos or car stereos takes place. This ensures that the amount of boost will not vary from one cassette to another, allowing the creation of even more effective tapes.

10.4 Recording Frequency Compensation for Car Stereo Applications

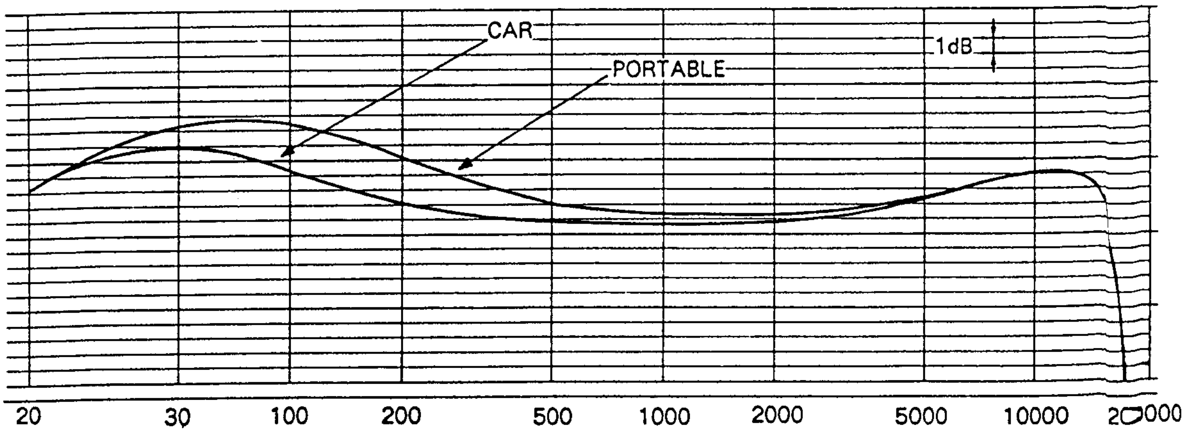
There are many restrictions on where and how speakers can be installed in a car due to the complex configuration of the car interior and its small capacity of around 3 m^3 quite small compared with a normal audio listening room. Under these circumstances, car speakers tend to have small-di-ameter diaphragms. Also, depending on the details of the installation, there may be a great deal of noise that leaks in from behind the speakers. Both of these factors work against the effective reproduction of low frequency sounds.

In addition, the sound spectrum of the noise produced when a car is running shows an increase in intensity at the low end of the frequency range. This low range noise tends to mask the bassportion of the music being played through the speakers. In order to improve the low frequency characteristics peculiar to cars, Sound EQ boosts the level of a frequency band centering on the frequencies between 40 and 50 Hz.

There is also a tendency for treble reproduction to be insufficient in card due to poor speaker orientation and the presence of objects such as seats that absorb high frequency sounds. To compensate for this, a slight boost in the high range is also added in order to create a sense of increased spaciousness.

10.5 Recording Frequency Compensation for Portable Stereo Applications

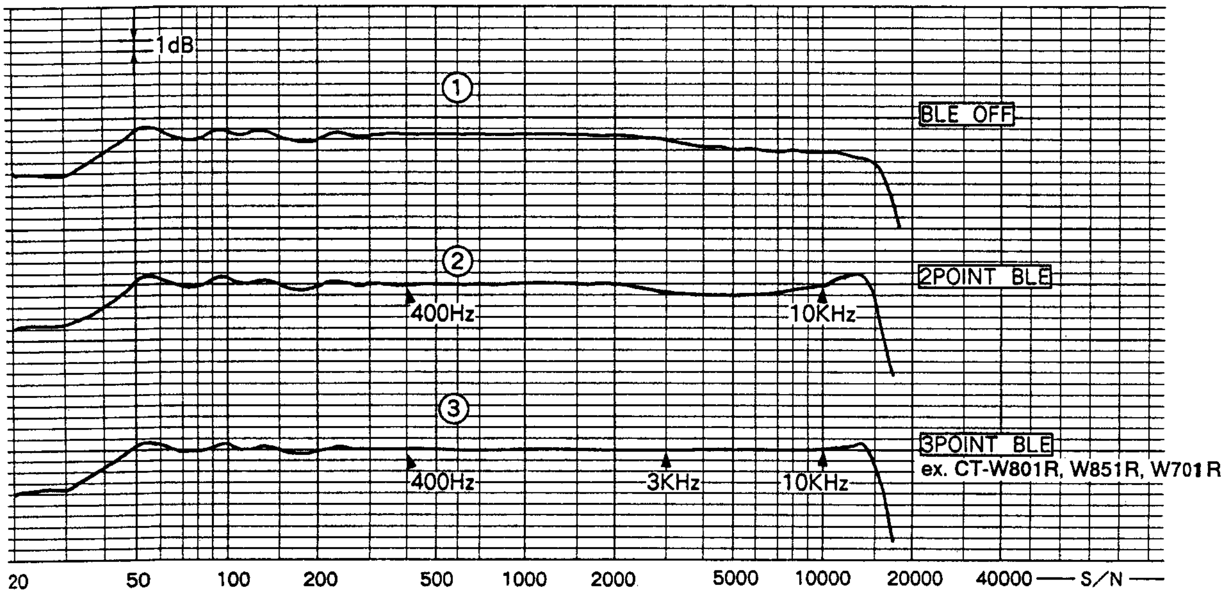
The headphones used with portable stereos can not match the bass response of full-sized room speaker systems due to factors such as the smallness of their driver diaphragms, the point at which the electrical music signal is converted into sound waves. To compensate for this, Sound EQ boosts the frequencies centered around 70 Hz. Also, the high frequency reproduction characteristics of headphone stereos are generally inferior to those of standard cassette decks due to factors such as head azimuth misalignment, which can easily occur if the unit is dropped or bumped. To compensate for this, a slight boost in the high range is also added to provide added ambience.



FREQUENCY RESPONSE (LINE) MPX ON

● SUPER AUTO BLE (First Double Deck with a 3-point BLE)

In conventional 2 head units, bias, level and equalizer were tuned using the 2-point AUTO BLE (400 Hz and 10 kHz) to flatten the frequency characteristic. Although most tapes could be flattened by this method, medium band correction (3 kHz) has been added and the dip of medium band which rarely occurs has been improved this time to flatten the frequency characteristic even more. The 3-point BLE has already been used in 3 heads units to perform adjustments. However, this is the first time it is used in a 2 heads unit.



11. FOR CT-W801R/SD, CT-W851R/HEM AND HB TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The CT-W801R/SD, CT-W851R/HEM, HB and CT-W801R/KUC have the same construction except for the following:

Mark	Symbol & Description	Part No.				Remarks
		CT-W801R/ KUC type	CT-W801R/ SD type	CT-W851R/ HEM type	CT-W851R/ HB type	
⊙	Mother unit	RWM1471	RWM1539	RWM1472	RWM1472	
NSP	MAIN unit	RWZ2486	RWZ2685	RWZ2505	RWZ2505	
NSP	HP, MIC unit	RWZ2487	RWZ2686	RWZ2506	RWZ2506	
NSP	OPERATE SW(1) unit	RWZ2488	RWZ2687	RWZ2507	RWZ2507	
NSP	OPERATE SW(2) unit	RWZ2489	RWZ2688	RWZ2508	RWZ2508	
NSP	DISPLAY unit	RWZ2490	RWZ2689	RWZ2509	RWZ2509	
NSP	TR SEC unit	RWZ2491	RWZ2690	RWZ2510	RWZ2510	
⚠	Strain relief	CM – 22C	CM – 22B	CM – 22B	CM – 22B	
⚠	AC power cord	PDG1015	PDG1013	PDG1003	PDG1036	
⚠	Power transformer (AC120V)	RTT1165	......	......	......	
⚠	Power transformer (AC110/120 – 127/220/240V)	......	RTT1167	......	......	
⚠	Power transformer (AC220 – 230/230 – 240V)	......	......	RTT1166	RTT1166	
⚠	FU1, FU2 Fuse (1.5A)	REK1001	......	......	......	
⚠	FU1, FU2 Fuse (T1.6A)	......	REK – 102	REK – 102	REK – 102	
⚠	Voltage selector (AC110/120 – 127/220/240V)	......	PSB1002	......	......	
	FL lens	RAH2079	RAH2079	RAH2080	RAH2080	
	Front panel assembly	RXX1518	RXX1518	RXX1517	RXX1517	
⊙	Mechanism unit (Deck I)	RYM1169	RYM1169	RYM1172	RYM1172	
⊙	Mechanism unit (Deck II)	RYM1170	RYM1170	RYM1173	RYM1173	
NSP	Rear panel	RNA1569	RNA1572	RNA1570	RNA1571	
NSP	SW bracket	RNE1441	......	......	......	
NSP	Capacitor sleeve A	......	REC – 150	REC – 150	REC – 150	(for C1203)
NSP	Front panel	RAH2065	RAH2065	RAH2066	RAH2066	
	Packing case	RHG1368	RHG1370	RHG1369	RHG1369	
	Connection cord (with mini plug)	PDE – 319	PDE – 319	......	......	
	Remote control unit	......	......	RPX1057	RPX1057	
	Battery cover	......	......	PZN1010	PZN1010	
	Operating instructions (English)	RRB1120	......	......	RRB1120	
	Operating instructions (Spanish)	......	RRD1123	......	......	
	Operating instructions (French/German/Italian/ Dutch/Swedish/Spanish/Portuguese)	......	......	RRE1063	......	

MAIN UNIT

RWZ2685, RWZ2505 and RWZ2486 have the same construction except for the following:

Mark	Symbol & Description	Part No.			Remarks
		RWZ2486	RWZ2685	RWZ2505	
	D910-912	1SS254	1SS254	......	
	C910	CKCYF103Z50	CKCYF103Z50	......	
	R719, 720	RD1/6PM332J	RD1/6PM222J	RD1/6PM222J	
	JA902, 903	RKN1004	RKN1004	......	

DISPLAY UNIT

RWZ2509 and RWZ2490 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ2490	RWZ2509	
	V1501	RAW1105	RAW1107	

Note: Although RWZ2689 and RWZ2490 are different in part number, they have the same service parts.

OPERATE SW(1) UNIT

Although RWZ2687, RWZ2507 and RWZ2488 are different in part number, they have the same service parts.

OPERATE SW(2) UNIT

Although RWZ2688, RWZ2508 and RWZ2489 are different in part number, they have the same service parts.

HP, MIC UNIT

Although RWZ2506, RWZ2686 and RWZ2487 are different in part number, they have the same service parts.

TR SEC UNIT

Although RWZ2690, RWZ2510 and RWZ2491 are different in part number, they have the same service parts.

MECHANISM UNIT(DECK I)

RYM1172 and RYM1169 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RYM1169	RYM1172	
	BELT MAIN	REB1159	REB1162	
	ASS'Y FLYWHEEL L	RXA1423	RXA1476	
	ASS'Y FLYWHEEL R	RXA1424	······	
	ASS'Y MOTOR	RXM1052	RXM1051	
	GEAR FW R	······	RNK1733	
	FLYWHEEL R	······	RXA1415	

MECHANISM UNIT(DECK II)

RYM1173 and RYM1170 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RYM1170	RYM1173	
	BELT MAIN	REB1159	REB1162	
	ASS'Y FLYWHEEL L	RXA1423	RXA1476	
	ASS'Y FLYWHEEL R	RXA1424	······	
	ASS'Y MOTOR	RXM1052	RXM1051	
	GEAR FW R	······	RNK1733	
	FLYWHEEL R	······	RXA1415	

12. FOR CT-W701R/HEM AND HB TYPES

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The CT-W701R/HEM, HB and CT-W701/KUC have the same construction except for the following:

Mark	Symbol & Description	Part No.			Remarks
		CT-W701R KUC type	CT-W701R/ HEM type	CT-W701R/ HB type	
⊙	Mother unit	RWM1473	RWM1474	RWM1474	
NSP	MAIN unit	RWZ2511	RWZ2517	RWZ2517	
NSP	HP unit	RWZ2512	RWZ2518	RWZ2518	
NSP	OPERATE SW(1) unit	RWZ2513	RWZ2519	RWZ2519	
NSP	OPERATE SW(2) unit	RWZ2514	RWZ2520	RWZ2520	
NSP	DISPLAY unit	RWZ2515	RWZ2521	RWZ2521	
NSP	TR SEC unit	RWZ2516	RWZ2522	RWZ2522	
⚠	Strain relief	CM – 22C	CM – 22B	CM – 22B	
⚠	AC power cord	PDG1015	PDG1003	PDG1036	
⚠	Power transformer (AC120V)	RTT1165	······	······	
⚠	Power transformer (AC220 – 230/230 – 240V)	······	RTT1166	RTT1166	
⚠	FU1, FU2 Fuse (1.5A)	REK1001	······	······	
⚠	FU1, FU2 Fuse (T1.6A)	······	REK – 102	REK – 102	
	FL lens	RAH2079	RAH2081	RAH2081	
⊙	Mechanism unit (Deck I)	RYM1169	RYM1172	RYM1172	
⊙	Mechanism unit (Deck II)	RYM1170	RYM1173	RYM1173	
	Insulator	······	PNW1912	PNW1912	
	Foot assembly	PXA1201	······	······	
NSP	Rear panel	RNA1573	RNA1574	RNA1575	
NSP	SW bracket	RNE1441	······	······	
NSP	Capacitor sleeve A	······	REC – 150	REC – 150	(For C1203)
	Packing case	RHG1371	RHG1372	RHG1372	
	Operating instructions (English)	RRB1120	······	RRB1120	
	Operating instructions (French/German/Italian/Dutch/Swedish/ Spanish/Portuguese)	······	RRE1063	······	

MAIN UNIT
RWZ2517 and RWZ2511 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ2511	RWZ2517	
	R719, 720	RD1/6PM332J	RD1/6PM222J	

DISPLAY UNIT

RWZ2521 and RWZ2515 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RWZ2515	RWZ2521	
	V1501	RAW1105	RAW1107	

OPERATE SW(1) UNIT

Although RWZ2519 and RWZ2513 are different in part number, they have the same service parts.

OPERATE SW(2) UNIT

Although RWZ2520 and RWZ2514 are different in part number, they have the same service parts.

HP UNIT

Although RWZ2518 and RWZ2512 are different in part number, they have the same service parts.

TR SEC UNIT

Although RWZ2522 and RWZ2516 are different in part number, they have the same service parts.

MECHANISM UNIT(DECK I)

RYM1172 and RYM1169 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RYM1169	RYM1172	
	BELT MAIN	REB1159	REB1162	
	ASS'Y FLYWHEEL L	RXA1423	RXA1476	
	ASS'Y FLYWHEEL R	RXA1424	······	
	ASS'Y MOTOR	RXM1052	RXM1051	
	GEAR FW R	······	RNK1733	
	FLYWHEEL R	······	RXA1415	

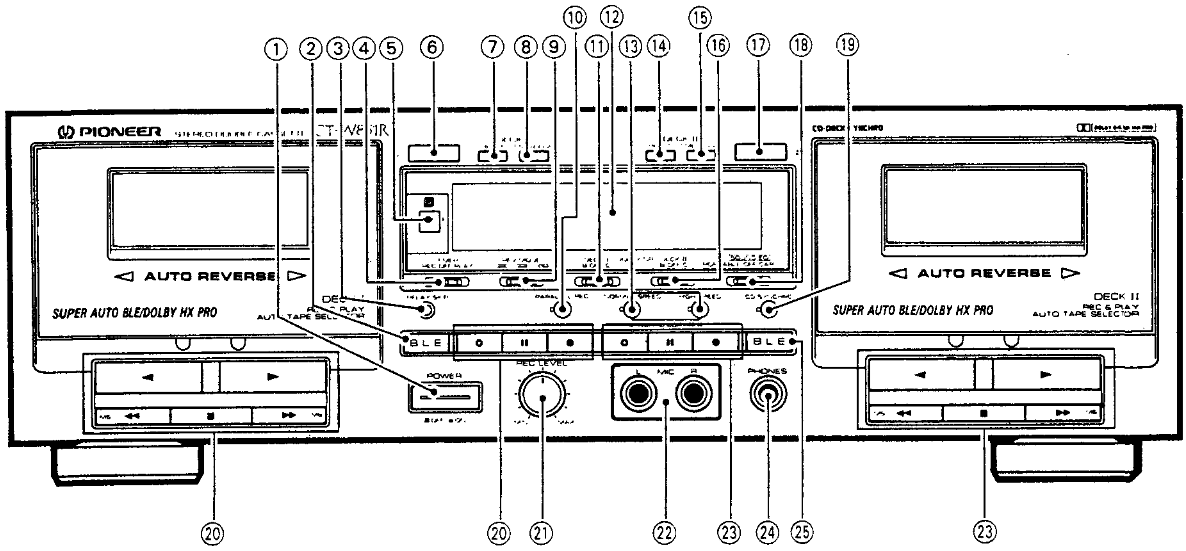
MECHANISM UNIT(DECK II)

RYM1173 and RYM1170 have the same construction except for the following:

Mark	Symbol & Description	Part No.		Remarks
		RYM1170	RYM1173	
	BELT MAIN	REB1159	REB1162	
	ASS'Y FLYWHEEL L	RXA1423	RXA1476	
	ASS'Y FLYWHEEL R	RXA1424	······	
	ASS'Y MOTOR	RXM1052	RXM1051	
	GEAR FW R	······	RNK1733	
	FLYWHEEL R	······	RXA1415	

13. PANEL FACILITIES

The illustration shows model CT-W851R.



① **POWER switch (■ OFF/ ▬ ON)**

② **DECK I AUTO BLE button**

③ **RELAY/SKIP button**

④ **TIMER mode switch (REC/OFF/PLAY)**

⑤ **Remote sensor (CT-W851R only)**

⑥ **DECK I eject button (⏏)**

- If the tape is moving (recording, playback, tape winding etc.), press the stop (■) button before pressing this button.

NOTE:
If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.

⑦ **DECK I counter reset button (RESET)**

⑧ **DECK I counter mode button (TIME/COUNT)**

⑨ **Reverse mode switch (REV MODE)**

⑩ **Parallel recording button (PARALLEL REC) (CT-W851R/CT-W801R only)**

⑪ **DECK I DOLBY* NR switch (B/OFF/C)**

*

- *Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.*
- *"DOLBY", the double-D symbol ▯▯ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.*

⑫ **Function display**

⑬ **Synchro copy buttons (SYNCHRO COPY I▶II)**

NORMAL SPEED: Normal speed copy
HIGH SPEED : Double speed copy

⑭ **DECK II counter reset button (RESET)**

⑮ **DECK II counter mode button (TIME/COUNT)**

⑯ **DECK II DOLBY* NR switch (B/OFF/C)**

⑰ **DECK II eject button (⏏)**

- If the tape is moving (recording, playback, tape winding etc.), press the stop (■) button before pressing this button.

NOTE:
If the power is turned off while the tape is moving, the cassette door may remain locked. In this case, turn the power on before pressing the eject (⏏) button.

⑱ **SOUND EQ switch (PORTABLE/OFF/CAR)**

⑲ **CD•DECK SYNCHRO recording button (CD▶ SYNCHRO)**

⑳ **DECK I operation buttons**

◀ : Reverse playback
▶ : Forward playback
◀◀/MS: Fast reverse/music search
■ : Stop
▶▶/MS: Fast forward/music search
O : Recording mute
❚❚ : Pause
● : Recording

㉑ **Recording level control (REC LEVEL)**

㉒ **Microphone jacks (MIC L,R) (CT-W851R/CT-W801R only)**

㉓ **DECK II operation buttons**

◀ : Reverse playback
▶ : Forward playback
◀◀/MS: Fast reverse/music search
■ : Stop
▶▶/MS: Fast forward/music search
O : Recording mute
❚❚ : Pause
● : Recording

㉔ **Headphones jack (PHONES)**

㉕ **DECK II AUTO BLE button**

14. SPECIFICATIONS

System	4 track, 2-channel stereo
Heads	"Hard Permalloy" recording/playback head × 2 "Ferrite" erasing head × 2
Motor	DC servo motor × 2
Wow and Flutter	No more than 0.09% (WRMS) No more than ±0.19% (DIN)
Fast Winding Time	Approximately 120 seconds (C-60 tape)
Frequency Response	
−20 dB recording:	
TYPE IV (Metal) tape	25 to 20,000 Hz
TYPE II (Chrome) tape	25 to 19,000 Hz
TYPE I (Normal) tape	25 to 18,000 Hz
Signal-to-Noise Ratio	
Dolby NR OFF	More than 57 dB
Noise Reduction Effect	
Dolby B-type NR ON	More than 10 dB (at 5 kHz)
Dolby C-type NR ON	More than 19 dB (at 5 kHz)
Harmonic Distortion	No more than 0.8% (at −4 dB: 160 nwb/m)
Input (Sensitivity)	
LINE (INPUT)	100 mV (Input impedance 38 kΩ)
MIC	0.63 mV (CT-W851R/CT-W801R only)
Output (Reference level)	
LINE (OUTPUT)	0.5 V (Output impedance 3.2 kΩ)
Headphone	0.63 mW (Load impedance 8 Ω)

Subfunctions

- AUTO BLE tuning system
- Automatic reverse
- Double recording/playback reverse
- DOLBY HX PRO recording function
- DOLBY B/C types NR
- Relay recording
- Parallel recording (CT-W851R/CT-W801R only)
- Music search over ±15 selections
- Synchronized copy start
- High-speed and normal-speed copy (DECK I→DECK II)
- Relay playback/blank skip
- CD•DECK SYNCHRO recording capability
- Peak level meter with peak-hold function
- MPX FILTER (Interlocks with DOLBY NR switch)
- Automatic space recording mute
- Automatic tape selector
- SR System remote control available (CT-W801R/CT-W701R only)
- TIMER Recording
- TIMER Playback (Automatic relay on)
- 2-mode electronic 4-digit twin tape counter
- Michrophone jacks (CT-W851R/CT-W801R only)
- Headphone jack
- Wireless remote control operation (CT-W851R only)
- SOUND EQ function

Miscellaneous

Power Requirements	
U.S., Canadian models	AC 120V, 60 Hz
U.K. model	AC 230−240 Volts∼, 50/60 Hz
Multivoltage model	AC 110V/120V−127V/220V/240V (switchable), 50/60 Hz
Power Consumption	
CT-W851R/CT-W801R	26W
CT-W701R	17W
Dimensions	
CT-W851R/CT-W801R	420(W) × 135(H) × 250(D) mm
CT-W701R	
U.S. and Canadian model	420(W) × 130(H) × 250(D) mm 16-2/4(W) × 5(H) × 9-13/16(D) in
U.K. model	420(W) × 135(H) × 250(D) mm
Weight (without package)	
CT-W851R/CT-W801R	4.7 kg (10 lb 5 oz.)
CT-W701R	4.6 kg (10 lb 2 oz.)

Accessories

Operating instructions	1
Connection cord with pin plugs	2
SR Remote control cord (CT-W801R/CT-W701R only)	1
CD•DECK SYNCHRO control cord	1
Remote control unit (CT-W851R only)	1
Dry cell batteries (size AAA/IEC R03) (CT-W851R only)	2

NOTE:
Specifications and design subject to possible modifications without notice, due to improvements.